Intel® Active Management Technology v6.0 Administrator's Guide

Overview

Menus and Defaults

Setup and Configuration

Management

AMT Redirection (SOL/IDE-R)

Intel Management and Security Status Application

Troubleshooting

If you purchased a DELL™ n Series computer, any references in this document to Microsoft® Windows® operating systems are not applicable.

April 2010 Rev. A00

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Overview

Intel® Active Management Technology (Intel AMT) allows companies to easily manage their networked computers.

- **Discover** computing assets on a network regardless of whether the computer is turned on or off – Intel AMT uses information stored in nonvolatile system memory to access the computer. The computer can even be accessed while it is powered off (also called out-of-band or OOB access).
- Remotely **repair** computers even after operating system failures – In the event of a software or operating system failure, Intel AMT can be used to access the computer remotely for repair purposes. IT administrators can also detect computer system problems easily with the assistance of Intel AMT's out-of-band event logging and alerting.
- **Protect** networks from incoming threats while easily keeping software and virus protection up to date across the network.

Software Support

Several independent software vendors (ISVs) are building software packages to work with Intel AMT features. This provides IT administrators many options when it comes to remotely managing the networked computer assets within their company.

Features and Benefits

Intel AMT	
Features	**Benefits**
Out-of-band (OOB) access	Allows remote management of platforms regardless of system power or operating system state
Remote troubleshooting and recovery	Significantly reduces desk-side visits, increasing the efficiency of IT technical staff
Proactive alerting	Decreases downtime and minimizes repair times

Computer Requirements

The computer referred to in this document consists of the Intel® 5 Series Chipset Family/Intel® PCH platform, and is managed by Intel Management Engine. The following firmware and software requirements are required for the installation and set up before the Intel Management Engine can be configured and run in the client computer:

- An SPI flash device programmed with Intel AMT 6.0 flash image integrating BIOS, Intel Management Engine, and GbE component images.
- BIOS set up with Intel AMT enabled can access MEBx setup from F12 menu.
- To enable all of the Intel Management Engine features within Microsoft Operating System, device drivers (Intel® MEI/SOL/LMS) must be installed and configured on the client system for features to work/run correctly run in the client system.

* Information on this page provided by Intel.

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 NOTE: The Intel Management Engine BIOS Extension (MEBx) is an optional ROM module provided to Dell™ from Intel that is included in the Dell BIOS. The MEBx has been customized for Dell computers.

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Out of Box Experience

The following materials are available with an Intel™ Active Management Technology (Intel AMT) computer:

- Factory installation
  - Intel AMT 6.0 is shipped in the factory-default state from Dell factories.
- Setup and Quick Reference Guide
  - Intel AMT overview with link to the Dell Technology Guide.
- Dell Technology Guide
  - High-level Intel AMT overview, setup, provisioning, and support.
- Backup media
  - Firmware and critical drivers are available on the Resource CD.

See the Administrator Guide for detailed information about Intel AMT. The guide is posted on the Web and is available with the computer manuals on **support.dell.com**.

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Operational Modes

Earlier versions of Intel® AMT supported two operational modes – Small and Medium Business (SMB) and Enterprise. In the current version, their functionality has been integrated to exhibit the functionality of the earlier Enterprise mode.

The new configuration options for SMB customers are: Manual Setup and Configuration and Automatic Setup and Configuration.

Setting	Intel AMT 5.0 Default		Intel AMT 6.0 Default
	Enterprise Mode	SMB Mode	
TLS mode	Enabled	Disabled	Disabled, can be enabled at a later time
Web UI	Disabled	Enabled	Enabled
IDER/SOL/KVM Redirection network interface enabled	Disabled	Enabled if feature enabled in Intel® MEBx	Enabled, can be disabled at a later time
Legacy Redirection Mode (Controls FW listening for incoming redirection connections)	Disabled	Enabled if feature enabled in Intel MEBx	Disabled (set to Enabled to work with Legacy SMB consoles)

 NOTE: KVM is supported only with integrated graphics CPU. The system should be in the integrated graphics mode.

Perform manual configuration using the following steps:

1. Flash image with system BIOS and FW.
2. Navigate to the Intel MEBx by pressing the F12 menu and typing the default password ***admin.*** After you are logged in, change the password.
3. Navigate to Intel ME General Settings menu.
4. Select **Activate Network Access**.
5. Choose "**Y**" in the confirmation message.
6. Exit the Intel MEBx.

NOTE: You can also accomplish the activation through external means or through the operating system using the Intel Activator tool.

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Setup and Configuration Overview

The following is a list of important terms related to the Intel® AMT setup and configuration.

- **Setup and configuration** — The process that populates the Intel AMT-managed computer with usernames, passwords, and network parameters that enable the computer to be administered remotely.
- **Configuration service** — A third-party application that completes the Intel AMT provisioning.
- **Intel AMT WebGUI** — A Web browser-based interface for limited remote computer management.

You must set up and configure Intel AMT on a computer before using it. Intel AMT setup readies the computer for Intel AMT mode and enables network connectivity. This setup is generally performed only once in the lifetime of a computer. When Intel AMT is enabled, it can be discovered by management software over a network.

Once Intel AMT is set up in Enterprise mode, it is ready to initiate configuration of its own capabilities. When all required network elements are available, simply connect the computer to a power source and the network and Intel AMT automatically initiates its own configuration. The configuration service (a third-party application) completes the process for you. Intel AMT is then ready for remote management. This configuration typically takes only a few seconds. When Intel AMT is set up and configured, you can reconfigure the technology as needed for your business environment.

Once Intel AMT is set up in the SMB mode, the computer does not have to initiate any configuration across the network. It is set up manually and is ready to use with the Intel AMT Web GUI.

Intel AMT Setup and Configuration States

The act of setting up and configuring Intel AMT is also known as provisioning. An Intel AMT-capable computer can be in one of three setup and configuration states (SCS):

- Factory-default state
- Setup state
- Provisioned state

The factory-default state is a fully un-configured state in which security credentials are not yet established and Intel AMT capabilities are not yet available to management applications. In the factory-default state, Intel AMT has the factory-defined settings.

The setup state is a partially configured state in which Intel AMT has been set up with initial networking and transport layer security (TLS) information: an initial administrator password, the provisioning passphrase (PPS), and the provisioning identifier (PID). When Intel AMT has been set up, Intel AMT is ready to receive enterprise configuration settings from a configuration service.

The provisioned state is a fully configured state in which the Intel Management Engine (ME) has been configured with power options, and Intel AMT has been configured with its security settings, certificates, and the settings that activate the Intel AMT capabilities. When Intel AMT has been configured, the capabilities are ready to interact with management applications.

Provisioning Methods

TLS-PKI

TLS-PKI is also known as "Remote Configuration". The SCS uses TLS-PKI (Public Key Infrastructure) certificates to securely connect to an Intel AMT-enabled computer. The certificates can be generated in the following ways:

- The SCS can connect using one of the default certificates pre-programmed on the computer, as detailed in the MEBx interface section of this document.
- The SCS can create a custom certificate, which can be deployed on the AMT computer by means of a desk-side visit with a specially formatted USB thumb drive as detailed in the Configuration Service section of this document.
- The SCS could use a custom certificate which was pre-programmed at the Dell factory through the Custom Factory Integration (CFI) process.

TLS-PSK

TLS-PSK is also known as "One-Touch Configuration". The SCS uses PSK's (Pre-Shared Key's) to establish a secure

connection with the AMT computer. These 52-character keys can be created by the SCS, and then deployed on the AMT computer with a desk-side visit in one of two ways:

- The key can be manually typed into the MEBx.
- The SCS can create a list of custom keys, and put them onto a specially formatted USB thumb drive. Then each AMT computer retrieves a custom key from the specially formatted USB thumb drive during BIOS boot as detailed in the Configuration Service section of this document.

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MEBx Settings Overview

The Intel® Management Engine BIOS Extension (MEBx) provides platform-level configuration options for you to configure the behavior of the Management Engine (ME) platform. Options include enabling and disabling individual features and setting power configurations.

This section provides details about MEBx configuration options and constraints, if any.

 NOTE: All the ME Platform Configuration setting changes are not cached in MEBx. They are committed to ME non-volatile memory (NVM) until you exit MEBx. Hence, if MEBx crashes, the changes made until that point are NOT going to be committed to ME NVM.

Accessing the MEBx Configuration User Interface

The MEBx configuration user interface can be accessed on a computer through the following steps:

1. Turn on (or restart) your computer.
2. When the blue DELL™ logo appears, press <F12> immediately and select MEBx.

   If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop. Then shut down your computer and try again.
3. Type the ME password. Press <Enter>.The default password is 'admin'. and it can be altered by the user.

 NOTE: Another method to access the MEBx is to press <F12> for the one-time boot menu. When the menu appears, use the up- and down-arrow keys to select **Intel Management Engine BIOS Extension (MEBx)**. Press <Enter>.

The MEBx screen appears as shown below.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
[ MAIN MENU ]
Intel(R) ME General Settings ▶
Intel(R) AMT Configuration ▶
Exit

Intel(R) ME Password

[ESC]=Exit                                   [ENTER]=Submit
```

The main menu presents three function selections:

- **Intel ME General Settings**
- **Intel AMT Configuration**
- **Exit**

NOTE: Intel MEBx will display only detected options. If one or more of these options do not appear, verify that the system supports the relevant missing feature.

Changing the Intel ME Password

The default password is admin and is the same on all newly deployed platforms. You must change the default password before changing any feature configuration options.

When an IT administrator first enters the Intel MEBx configuration menu with the default password, he or she must change the default password before any feature can be used.

The new password must include the following elements:

- Eight characters, no more than 32
- One uppercase letter
- One lowercase letter
- A number
- A special (non-alphanumeric) character, such as !, $, or ; excluding the :, ", and , characters.)

NOTE: The underscore (_) and spacebar are valid password characters but do NOT add to the password complexity.

* Information on this page provided by Intel.

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ME General Settings

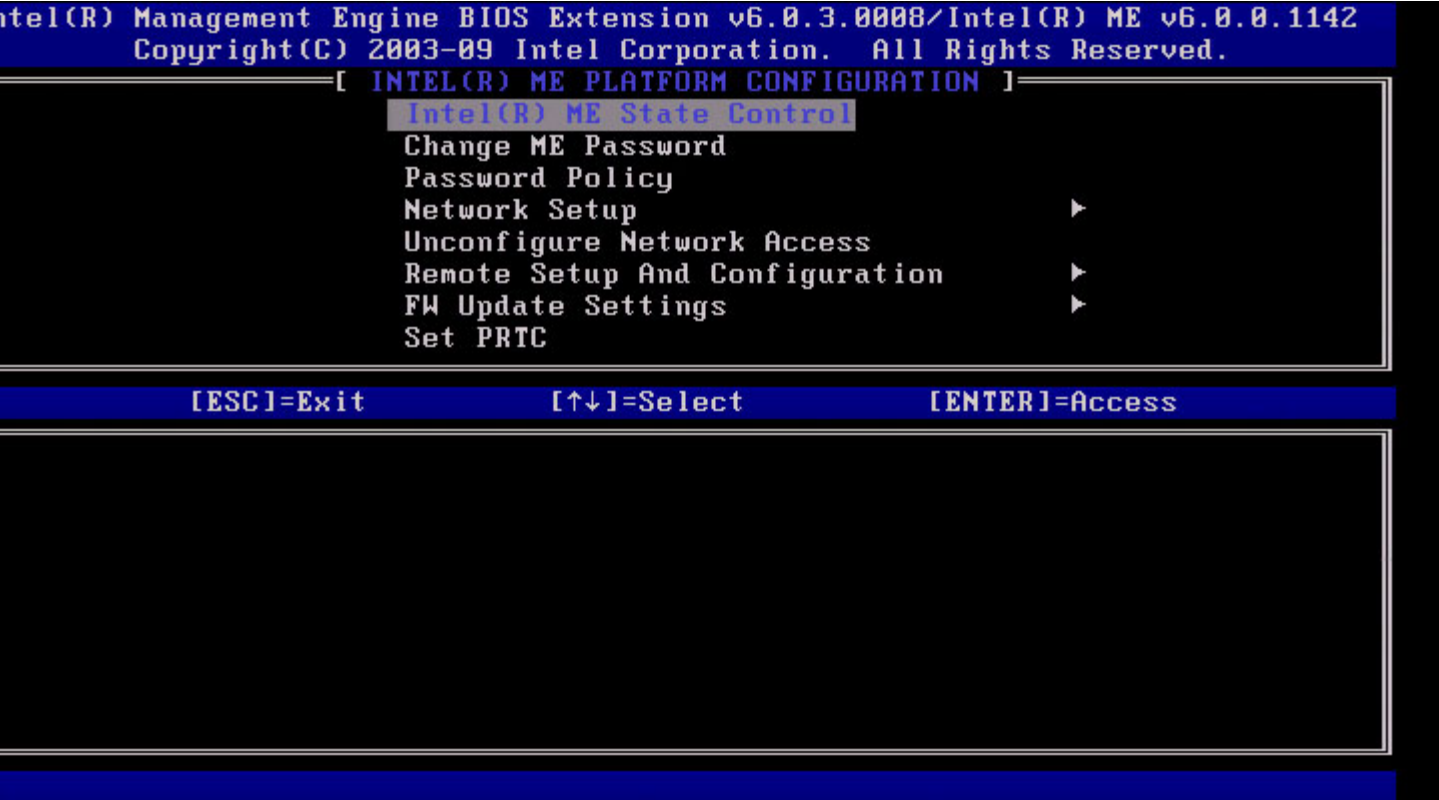
To navigate to the **Intel® Management Engine (ME) Platform Configuration** page, follow these steps:

1. Under the Management Engine BIOS Extension (MEBx) main menu, select **Intel ME General Settings**. Press <Enter>.
2. The following message appears:
   `Acquiring General Settings configuration`

The **ME General Configuration** page appears. This page allows the IT administrator to configure the specific functionality of the Intel ME, such as password, power options, and so on. Below are quick links to the various sections.

Intel ME State Control

When the **ME State Control** option is selected on the **ME Platform Configuration** menu, the **ME State Control** menu appears. You can disable ME to isolate the ME computer from the main platform until the end of the debugging process.

```
ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
        Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.
[ INTEL(R) ME PLATFORM CONFIGURATION ]
                    Intel(R) ME State Control
                    Change ME Password
                    Password Policy
                    Network Setup                              ►
                    Unconfigure Network Access
                    Remote Setup And Configuration             ►
                    FW Update Settings                         ►
                    Set PRTC

          [ESC]=Exit          [↑↓]=Select          [ENTER]=Access
```

The Intel ME State Control option **(enable/disable)** provides the ability to disable the Intel ME for debugging purposes. Disabling the Intel ME through the MEBx prevents the Intel ME code from executing. This allows an IT technician to eliminate the Intel ME as the potential problem.

ME Platform State Control	
Option	**Description**
Enabled	Enable the Management Engine on the platform
Disabled	Disable the Management Engine on the platform

 NOTE: “Disabling” the Intel ME does not really disable it. It causes the Intel ME code to be halted at an early stage of the Intel ME’s booting so that the system has no traffic originating from the Intel ME on any of the buses. This is not intended to be normal operation mode nor is it supported configuration and is for debug only. This allows an IT technician to debug a system problem without any interference from the Intel ME.

Change Intel ME Password

1. At the Intel ME New Password prompt, type your new password. (Please be aware of the password policies and restrictions mentioned in changing the Intel ME Password requirement)
2. At the Verify Password prompt, re-type your new password.

```
Intel(R) Management Engine BIOS Extension v6.0.1.0003
Copyright(C) 2003-08 Intel Corporation.  All Rights Reserved.
[ INTEL(R) ME PLATFORM CONFIGURATION ]
Intel(R) ME State Control
Change ME Password
Password Policy
Network Setup                         ►
Activate Network Access
Unconfigure Network Access
Remote Setup And Configuration        ►
FW Update Settings                    ►

Intel(R) ME New Password
*********_

[ESC]=Exit                                  [ENTER]=Submit
```

Password Policy

This option determines when the user is allowed to change the Intel MEBx password through the network.

 NOTE: The Intel MEBx password can always be changed via the Intel MEBx user interface.

```
Intel(R) Management Engine BIOS Extension v6.0.1.0003
Copyright(C) 2003-08 Intel Corporation.  All Rights Reserved.
[ INTEL(R) ME PLATFORM CONFIGURATION ]
Intel(R) ME State Control
Change ME Password
Password Policy
Network Setup                         ►
Activate Network Access
Unconfigure Network Access
Remote Setup And Configuration        ►
FW Update Settings                    ►
[ESC]=Exit          [↑↓]=Select          [ENTER]=Access

[*] DEFAULT PASSWORD ONLY
[ ] DURING SETUP AND CONFIGURATION
[ ] ANYTIME
```

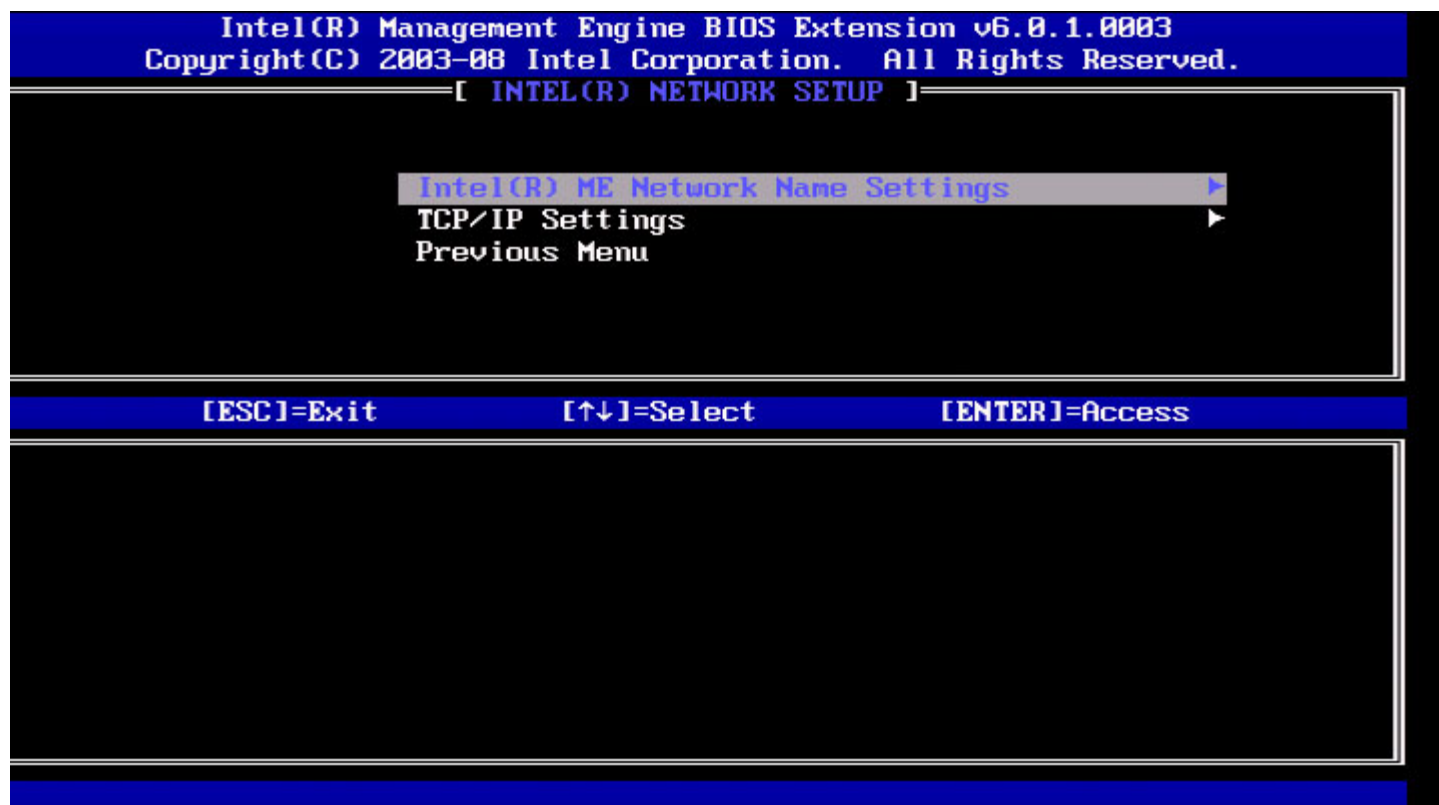
Description of these options.

- **Default Password Only** — The Intel MEBx password can be changed through the network interface if the default password has not been changed yet.
- **During Setup and Configuration** — The Intel MEBx password can be changed through the network interface during the setup and configuration process but at no other time. Once the setup and configuration process is complete, the Intel MEBx password cannot be changed via the network interface.
- **Anytime** — The Intel MEBx password can be changed through the network interface at any time.

Network Setup

Under the Intel ME Platform Configuration menu, select **Network Setup** and press **Enter**.
The Intel ME Platform Configuration menu changes to the Intel ME Network Setup page.

Network Name Settings

Under the Intel ME Network Name Settings, select **Intel ME Network Name Settings** and press **Enter**.

1. Host Name

Under the Intel ME Network Name Settings, select **Host Name** and press **Enter**.
A host name can be assigned to the Intel AMT machine. This will be the host name of the Intel AMT-enabled system.

```
Intel(R) Management Engine BIOS Extension v6.0.1.0003
Copyright(C) 2003-08 Intel Corporation.  All Rights Reserved.
[INTEL(R) ME NETWORK NAME SETTINGS ]

Host Name
Domain Name
Shared/Dedicated FQDN
Dynamic DNS Update
Previous Menu

Computer host name

[ESC]=Exit                                   [ENTER]=Submit
```

2. Domain Name

Under the Intel ME Network Name Settings, select **Domain Name** and press **Enter**.
A domain name can be assigned to the Intel AMT machine.

```
Intel(R) Management Engine BIOS Extension v6.0.1.0003
Copyright(C) 2003-08 Intel Corporation.  All Rights Reserved.
[INTEL(R) ME NETWORK NAME SETTINGS ]

Host Name
Domain Name
Shared/Dedicated FQDN
Dynamic DNS Update
Previous Menu

Computer Domain name

[ESC]=Exit                                   [ENTER]=Submit
```

3. Shared/Dedicated FQDN

Under the Intel ME Network Name Settings, select **Shared / Dedicated FQDN** and press **Enter**.

This setting determines whether the Intel ME Fully Qualified Domain Name (FQDN) (that is, the "HostName.DomainName") is shared with the host and identical to the operating system machine name or dedicated to the Intel ME.

Option	Description
Dedicated	The FQDN domain name is dedicated to ME
Shared	The FQDN domain name is shared with the Host

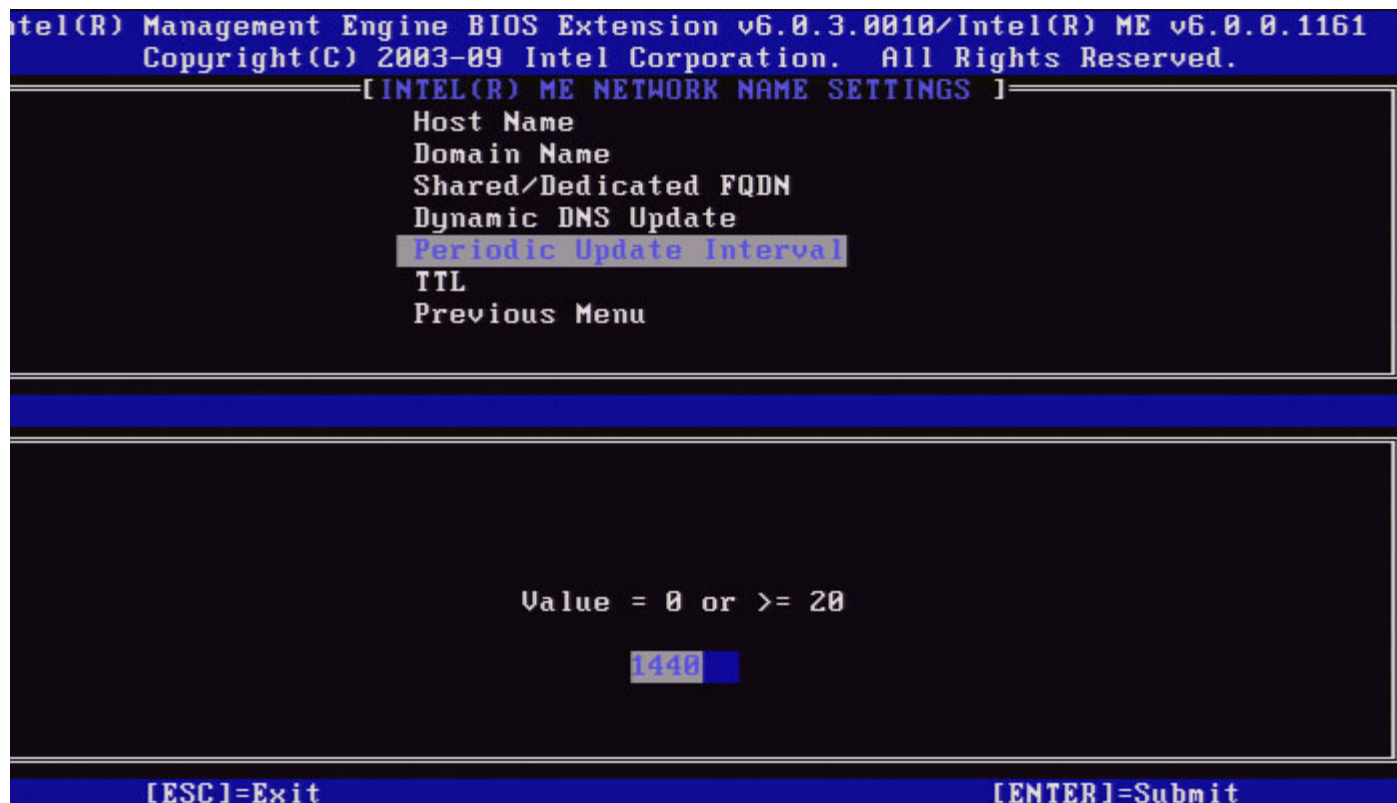
4. Dynamic DNS Update

Under the Intel ME Network Name Settings, select **Dynamic DNS Update** and press **Enter**.

If Dynamic DNS Update is enabled, then the firmware will actively try to register its IP addresses and FQDN in DNS using the Dynamic DNS Update protocol. If DDNS Update is disabled, then the firmware will not make an attempt to update DNS using DHCP option 81 or Dynamic DNS update. If the DDNS Update state (Enabled or Disabled) is not configured by the user at all, then the firmware will assume its old implementation where the firmware used DHCP option 81 for DNS registration but did not directly update DNS using the DDNS update protocol. For selecting “Enabled” for Dynamic DNS Update, it is required that the Host Name and Domain Name are set.

Option	Description
Enabled	The Dynamic DNS Update Client in FW is enabled.
Disabled	The Dynamic DNS Update Client in FW is disabled.

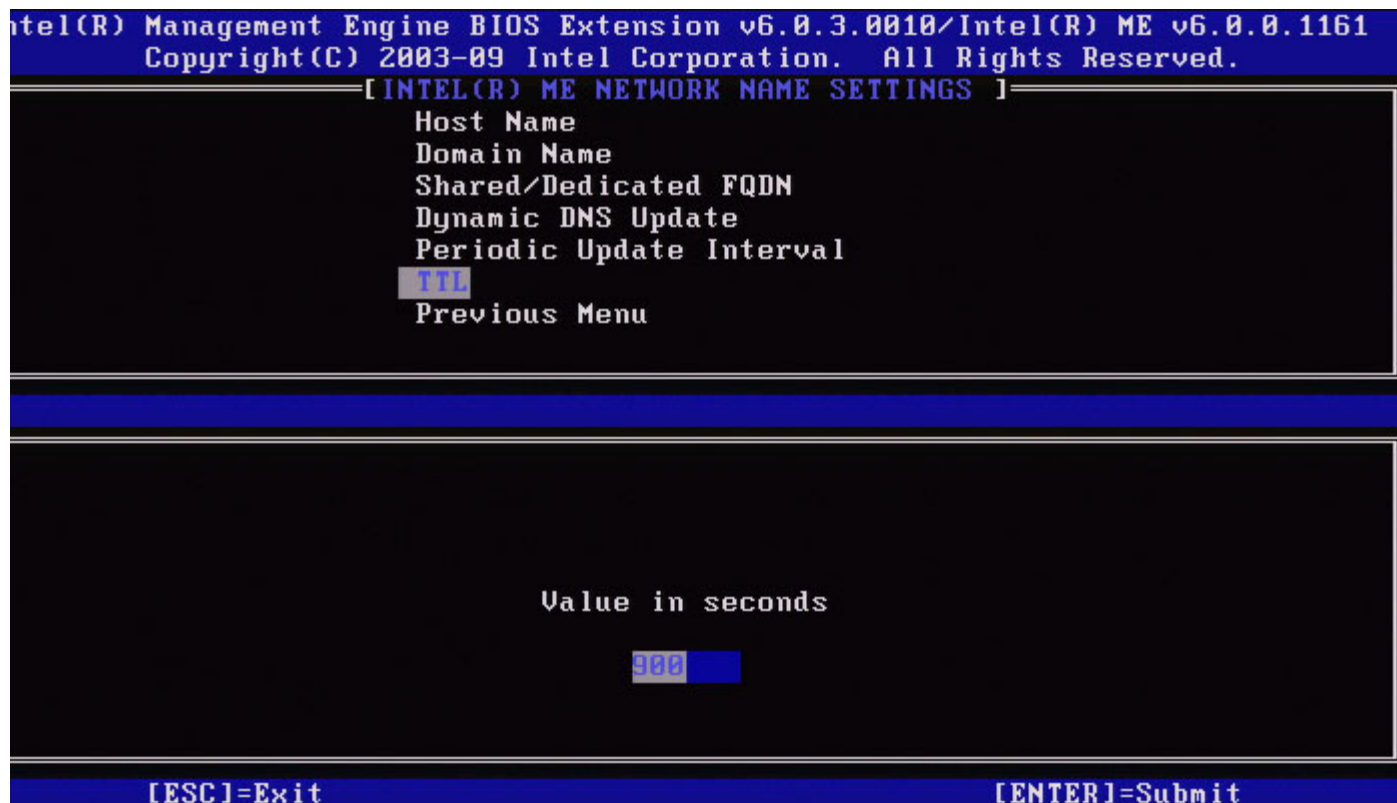
5. Periodic Update Interval

1. Under the Intel ME Network Name Settings, select **Periodic Update Interval** and press **Enter**.
2. Type the desired interval and press **Enter**.

NOTE: This option is only available when Dynamic DNS Update is enabled.

Defines the interval at which the firmware DDNS Update client will send periodic updates. It should be set according to corporate DNS scavenging policy. Units are minutes. A value of 0 disables periodic update. The value set should be equal or greater than 20 minutes. The default value for this property is 24 hours - 1440 minutes.

6. TTL

1. Under the Intel ME Network Name Settings, select **TTL** and press **Enter**.
2. Type the desired time (in seconds) and press **Enter**.

```
ntel(R) Management Engine BIOS Extension v6.0.3.0010/Intel(R) ME v6.0.0.1161
        Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.
[INTEL(R) ME NETWORK NAME SETTINGS ]
                Host Name
                Domain Name
                Shared/Dedicated FQDN
                Dynamic DNS Update
                Periodic Update Interval
                TTL
                Previous Menu

                Value in seconds

                      900

[ESC]=Exit                                        [ENTER]=Submit
```

NOTE: This option is only available when Dynamic DNS Update is enabled.

This setting allows configuring the TTL time in seconds. This number should be greater than zero. If set to zero, the firmware uses its internal default value, which is 15 min or 1/3 of lease time for DHCP.

7. Previous Menu

1. Under the Intel ME Network Name Settings, select **Previous Menu** and press **Enter**.
2. The Intel ME Network Name Settings menu changes to the Intel Network Setup page.

TCP/IP Settings

1. Under the Network Setup menu, select **TCP/IP Settings** and press **Enter**.
2. The Intel ME Network Name Settings menu changes to the Intel Network Setup page.

The Intel Network Setup menu changes to the TCP/IP Settings page.

NOTE: The Intel MEBx has menus for Wireless IPv6, but no menu for wireless IPv4. When the Intel MEBx starts, it will check for the wireless interface to make the decision to display the wireless IPv6 menu or not.

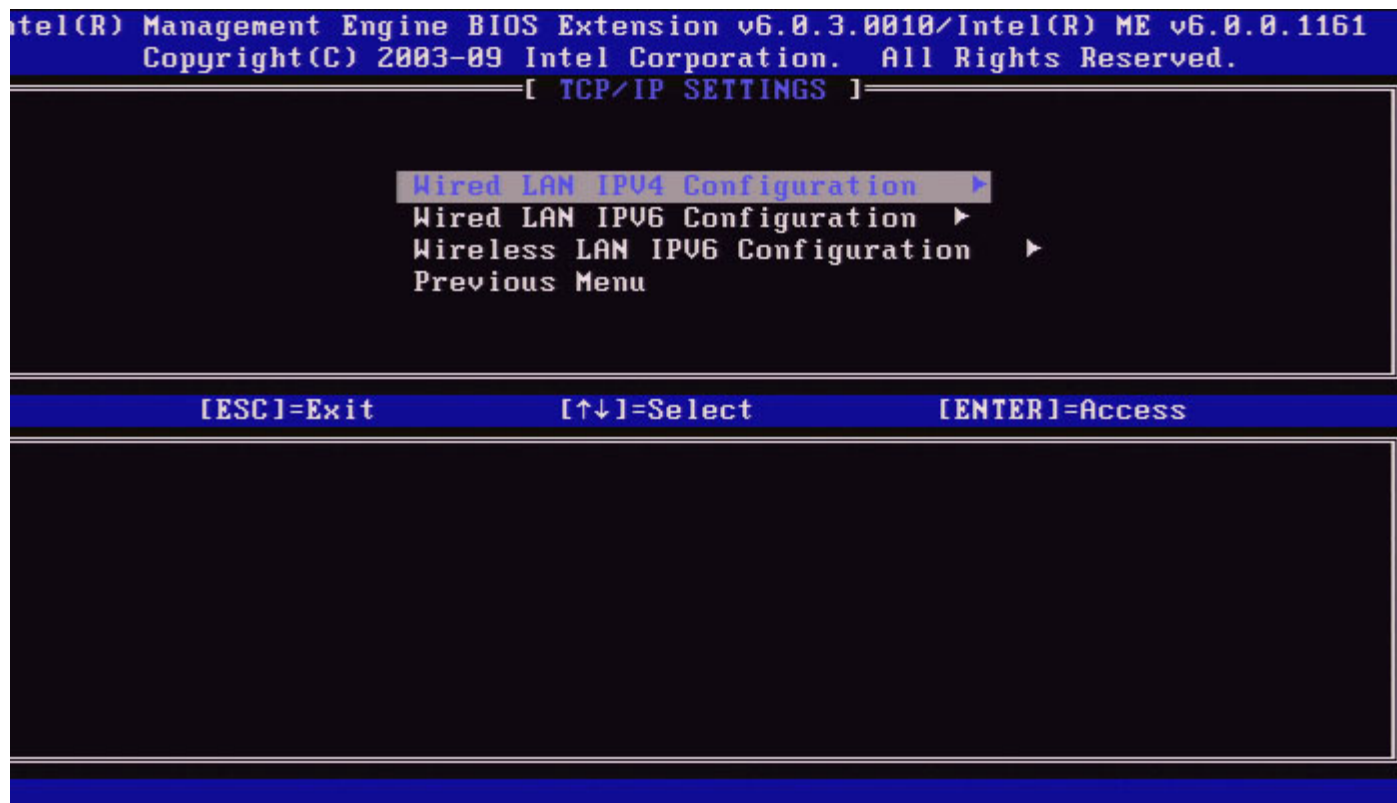
Wired LAN IPv4 Configuration

Under the TCP/IP Settings, select **Wired LAN IPv4 Configuration** and press **Enter**.
The TCP/IP Settings menu changes to the Wired LAN IPv4 Configuration page.

ntel(R) Management Engine BIOS Extension v6.0.3.0010/Intel(R) ME v6.0.0.1161
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.

[TCP/IP SETTINGS]

Wired LAN IPV4 Configuration ►
Wired LAN IPV6 Configuration ►
Wireless LAN IPV6 Configuration ►
Previous Menu

[ESC]=Exit [↑↓]=Select [ENTER]=Access

1. DHCP Mode

Under Wired LAN IPv4 Configuration, select **DHCP Mode** and press **Enter**.
The TCP/IP Settings menu changes to the Wired LAN IPv4 Configuration page.

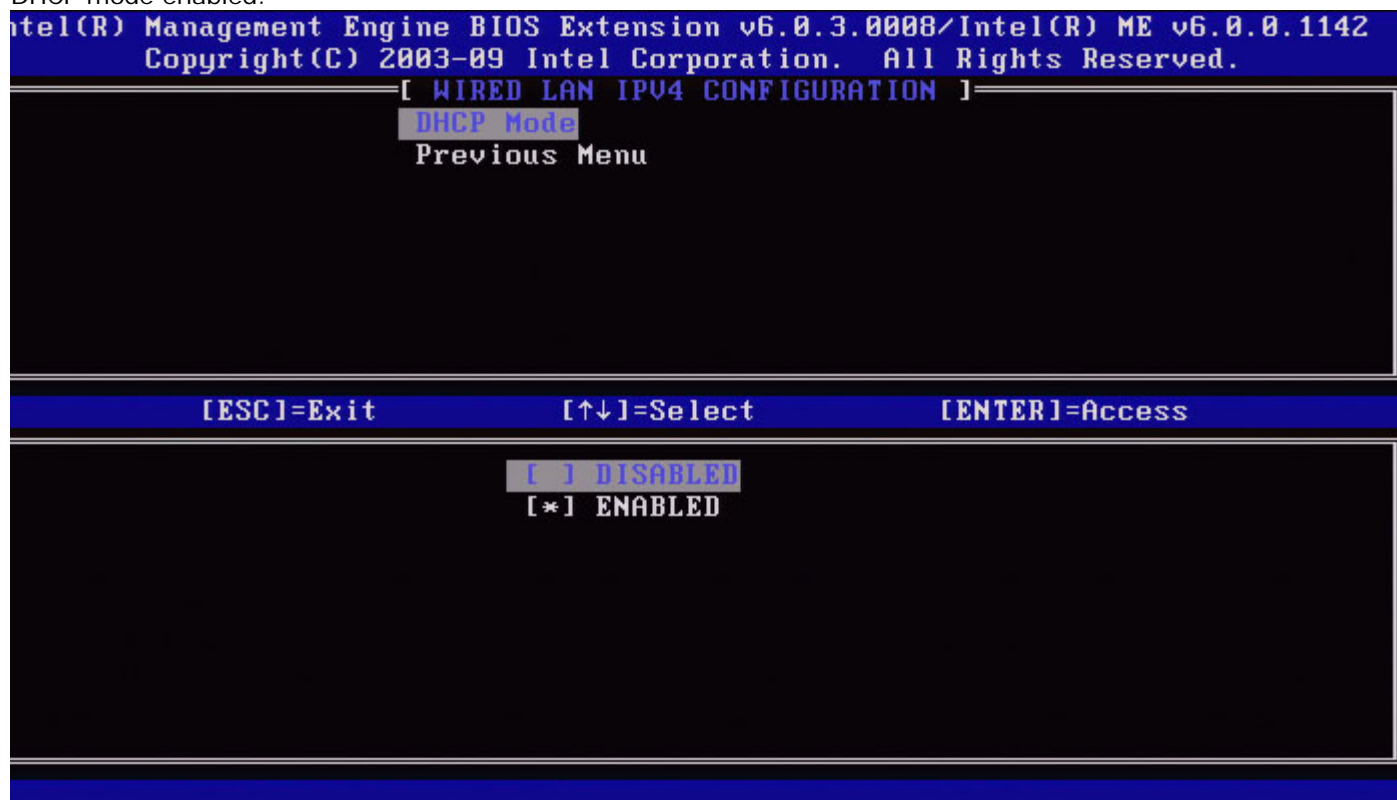
ENABLED: If DHCP Mode is enabled, TCP/IP settings will be configured by a DHCP server. More options will be displayed on the screen. Select **ENABLED** and press **Enter**, no additional steps are required.

DHCP mode enabled.

ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.

[WIRED LAN IPV4 CONFIGURATION]

DHCP Mode
Previous Menu

[ESC]=Exit [↑↓]=Select [ENTER]=Access

[ ] DISABLED
[*] ENABLED

Select **DISABLED** and press **Enter**. If you disable DHCP, more options will be displayed.

DHCP mode disabled.

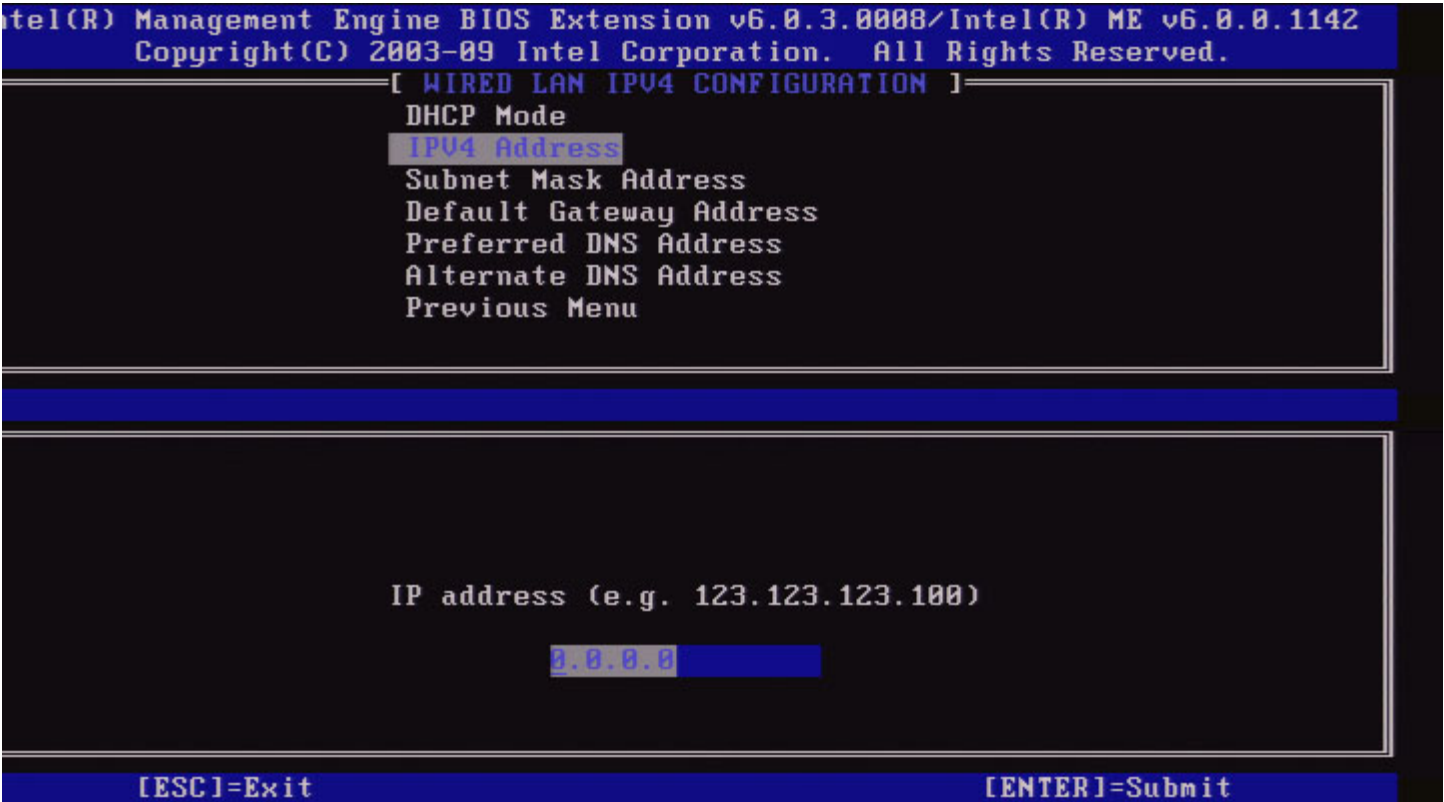
2. IPv4 Address

Select **IPv4 Address** and press **Enter**.
Type the IPv4 Address in the address column and press **Enter**.

ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
[WIRED LAN IPV4 CONFIGURATION]
DHCP Mode
IPV4 Address
Subnet Mask Address
Default Gateway Address
Preferred DNS Address
Alternate DNS Address
Previous Menu

IP address (e.g. 123.123.123.100)

0.0.0.0

[ESC]=Exit [ENTER]=Submit

3. Subnet Mask Address

Select **Subnet Mask Address** and press **Enter**.
Type the Subnet Mask Address in the address column and press **Enter**.

4. Default Gateway Address

Select **Default Gateway Address** and press **Enter**.
Type the Default Gateway Address in the address column and press **Enter**.

ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
[WIRED LAN IPV4 CONFIGURATION]
DHCP Mode
IPV4 Address
Subnet Mask Address
Default Gateway Address
Preferred DNS Address
Alternate DNS Address
Previous Menu
Default Gateway address
0.0.0.0
[ESC]=Exit
[ENTER]=Submit

5. Preferred DNS Address

Select **Preferred DNS Address** and press **Enter**.
Type the Preferred DNS Address in the address column and press **Enter**.

```
tel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
       Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.
[ WIRED LAN IPV4 CONFIGURATION ]
DHCP Mode
IPV4 Address
Subnet Mask Address
Default Gateway Address
Preferred DNS Address
Alternate DNS Address
Previous Menu

Preferred DNS address
0.0.0.0

[ESC]=Exit                                    [ENTER]=Submit
```

6. Alternate DNS Address

Select **Alternate DNS Address** and press **Enter**.
Type the Alternate DNS Address in the address column and press **Enter**.

```
tel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
       Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.
[ WIRED LAN IPV4 CONFIGURATION ]
DHCP Mode
IPV4 Address
Subnet Mask Address
Default Gateway Address
Preferred DNS Address
Alternate DNS Address
Previous Menu

Alternate DNS address
0.0.0.0

[ESC]=Exit                                    [ENTER]=Submit
```

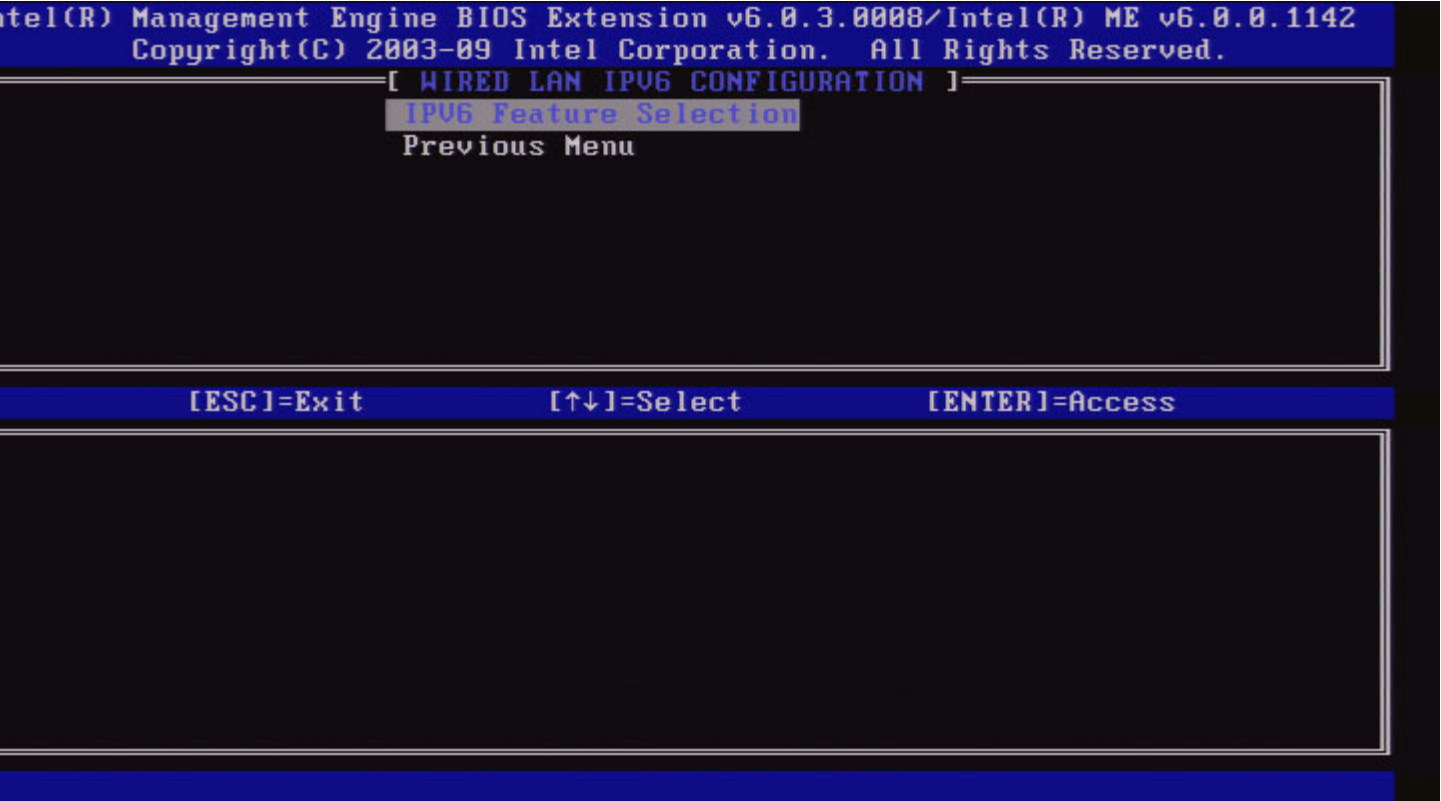
7. Previous Menu

Under the Wired LAN IPv4 Configuration, select **Previous Menu** and press **Enter**.
The Wired LAN IPv4 Configuration menu changes to the TCP/IP Settings menu.

Wired LAN IPv6 Configuration

Under the TCP/IP Settings, select **Wired LAN IPv6 Configuration** and press **Enter**.
The TCP/IP Settings menu changes to the Wired LAN IPv6 Configuration page.

The Intel ME IPv6 addresses are dedicated and not shared with the host operating system. To enable Dynamic DNS registration for IPv6 addresses, a dedicated FQDN must be configured.

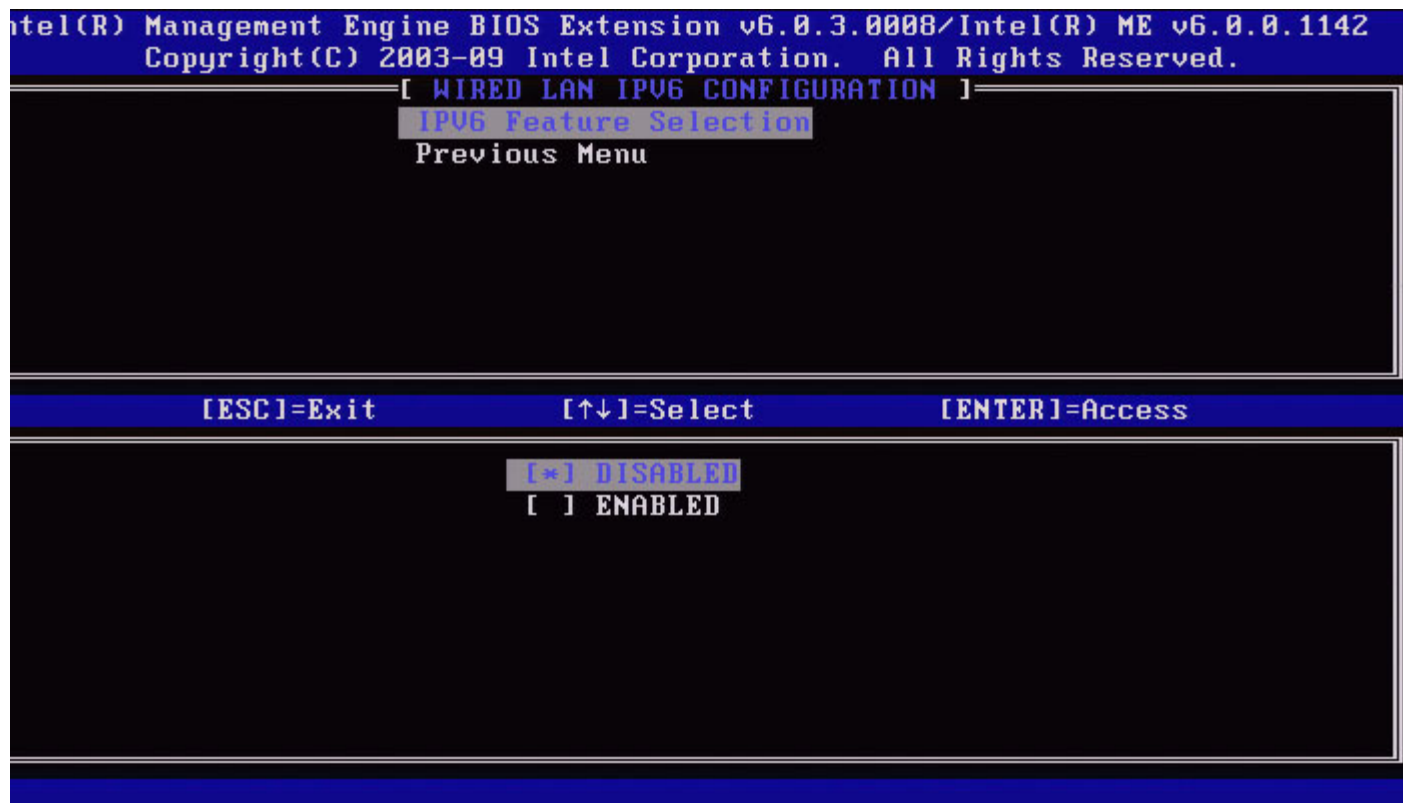
```
ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
          Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.
[ WIRED LAN IPV6 CONFIGURATION ]
IPV6 Feature Selection
Previous Menu

[ESC]=Exit          [↑↓]=Select          [ENTER]=Access
```

NOTE: The Intel ME network stack supports a multi-homed IPv6 interface. Each network interface can be configured with the following IPv6 addresses:

1. One link local auto-configured address
2. Three auto-configured global addresses
3. One DHCPv6 configured address
4. One statically configured IPv6 address

1. IPv6 Feature Selection

Under the Wired LAN IPv6 Configuration, select **IPv6 Feature Selection** and press **Enter**.

DISABLED: select 'Disabled' and press **Enter**. IPv6 Feature Selection is disabled.

```
ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
        Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.
[ WIRED LAN IPV6 CONFIGURATION ]
IPV6 Feature Selection
Previous Menu

[ESC]=Exit          [↑↓]=Select          [ENTER]=Access

[*] DISABLED
[ ] ENABLED
```

ENABLED: select 'Enabled' and press **Enter**.
IPv6 Feature Selection is enabled as more configuration is allowed.

```
ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
        Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.
[ WIRED LAN IPV6 CONFIGURATION ]
IPV6 Feature Selection
IPV6 Interface ID Type
IPV6 Address
IPV6 Default Router
Preferred DNS IPV6 Address
Alternate DNS IPV6 Address
Previous Menu

[ESC]=Exit          [↑↓]=Select          [ENTER]=Access
```

2. IPv6 Interface ID Type

Under the Wired LAN IPv6 Configuration, select **IPv6 Interface ID Type** and press **Enter**.
The auto-configured IPv6 address consists of two parts; the IPv6 Prefix set by the IPv6 router is the first part and the interface ID is the second part (64 bits each).

Option	Description
Random ID	The IPv6 Interface ID is automatically generated using a random number as described in RFC 3041. This is the default.
Intel ID	The IPv6 Interface ID is automatically generated using the MAC address.
Manual ID	The IPv6 Interface ID is configured manually. Selecting this type requires that the Manual Interface ID is set with a valid value.

3. IPv6 Address

Under the Wired LAN IPv6 Configuration, select **IPv6 Address** and press **Enter**.
Type the IPv6 Address and press **Enter**.

ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
[WIRED LAN IPV6 CONFIGURATION]
IPV6 Feature Selection
IPV6 Interface ID Type
IPV6 Address
IPV6 Default Router
Preferred DNS IPV6 Address
Alternate DNS IPV6 Address
Previous Menu

IPV6 address (e.g. 2001:db8::1428:57ab or any other valid IPV6 address)

[ESC]=Exit [ENTER]=Submit

4. IPv6 Default Router

Under the Wired LAN IPv6 Configuration, select **IPv6 Default Router** and press **Enter**.
Type the IPv6 Default Router and press **Enter**.

5. Preferred DNS IPv6 Address

Under the Wired LAN IPv6 Configuration, select **Preferred DNS IPv6 Address** and press **Enter**.
Type the Preferred DNS IPv6 Address and press **Enter**.

```
ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
        Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.
[ WIRED LAN IPV6 CONFIGURATION ]
IPV6 Feature Selection
IPV6 Interface ID Type
IPV6 Address
IPV6 Default Router
Preferred DNS IPV6 Address
Alternate DNS IPV6 Address
Previous Menu

IPV6 address (e.g. 2001:db8::1428:57ab or any other valid IPV6 address)

[ESC]=Exit                                             [ENTER]=Submit
```

6. Alternate DNS IPv6 Address

Under the Wired LAN IPv6 Configuration, select **Alternate DNS IPv6 Address** and press **Enter**.
Type the Alternate DNS IPv6 Address and press **Enter**.

```
ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
        Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.
[ WIRED LAN IPV6 CONFIGURATION ]
IPV6 Feature Selection
IPV6 Interface ID Type
IPV6 Address
IPV6 Default Router
Preferred DNS IPV6 Address
Alternate DNS IPV6 Address
Previous Menu

IPV6 address (e.g. 2001:db8::1428:57ab or any other valid IPV6 address)

[ESC]=Exit                                             [ENTER]=Submit
```

7. Previous Menu

Under the Wired LAN IPv6 Configuration, select **Previous Menu** and press **Enter**.
The Wired LAN IPv6 Configuration menu changes to the TCP/IP Settings menu.

Wireless LAN IPv6 Configuration

Under the TCP/IP Settings, select **Wireless LAN IPv6 Configuration** and press **Enter**.
The TCP/IP Settings menu changes to the Wireless LAN IPv6 Configuration page.

1. IPv6 Feature Selection

Under the Wireless LAN IPv6 Configuration, select **IPv6 Feature Selection** and press **Enter**.

2. IPv6 Interface ID Type

Under the Wired LAN IPv6 Configuration, select **IPv6 Interface ID Type** and press **Enter**.
The auto-configured IPv6 address consists of two parts; the IPv6 Prefix set by the IPv6 router is the first part and the interface ID is the second part (64 bits each).

Option	Description
Random ID	The IPv6 Interface ID is automatically generated using a random number as described in RFC 3041. This is the default.
Intel ID	The IPv6 Interface ID is automatically generated using the MAC address.
Manual ID	The IPv6 Interface ID is configured manually. Selecting this type requires that the Manual Interface ID is set with a valid value.

3. Previous Menu

Under the Wireless LAN IPv6 Configuration, select **Previous Menu** and press **Enter**.
The Wireless LAN IPv6 Configuration menu changes to the TCP/IP Settings menu.

Unconfigure Network Access

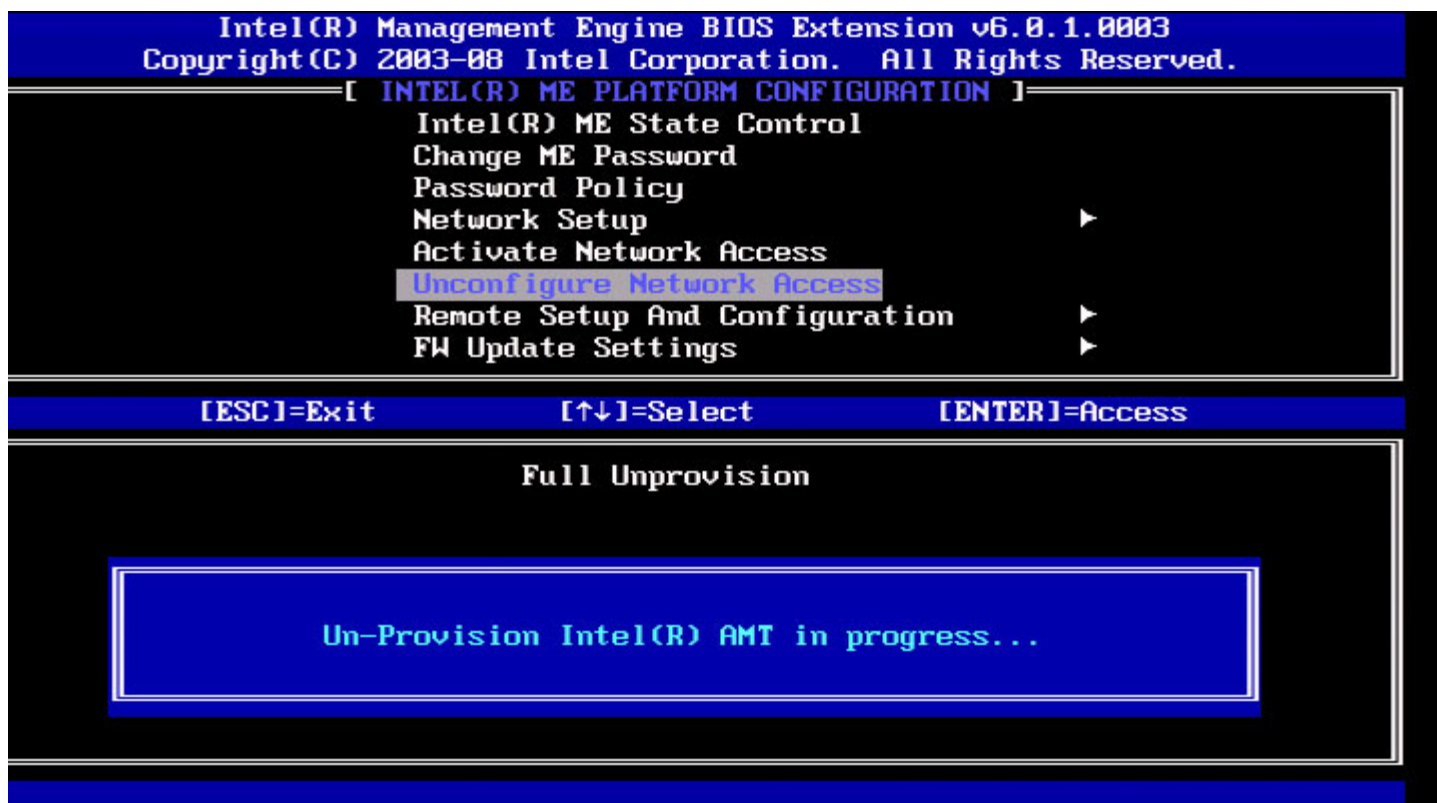
1. Under the Intel ME Platform Configuration menu, select **Unconfigure Network Access** and press **Enter**.

NOTE: This will cause Intel ME to transition to the PRE-provisioning state.

2. Select **Y** to unconfigure.

3. Select **Full Unprovisioning** and press **Enter**.

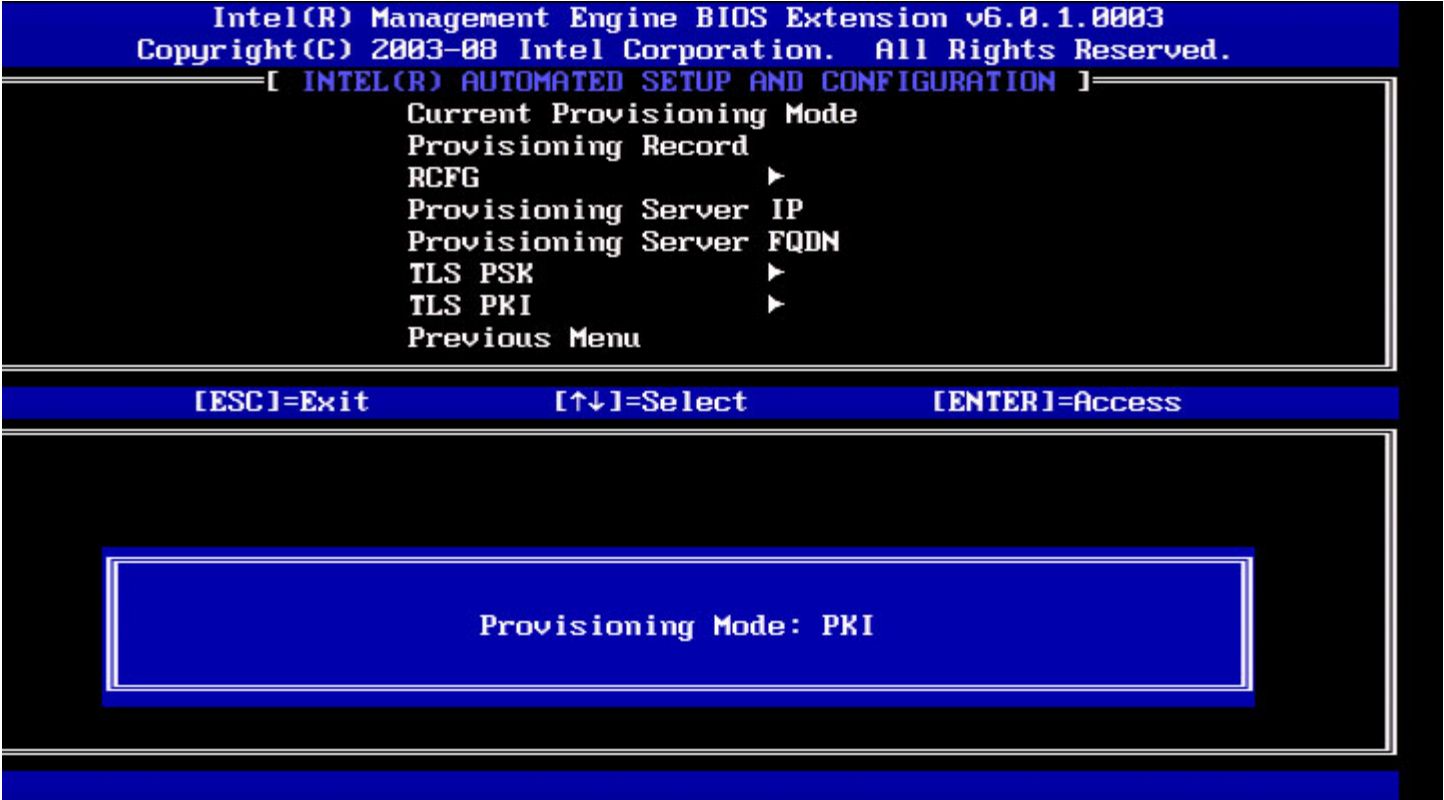
Intel(R) Management Engine BIOS Extension v6.0.1.0003
Copyright(C) 2003-08 Intel Corporation. All Rights Reserved.
[INTEL(R) ME PLATFORM CONFIGURATION]
Intel(R) ME State Control
Change ME Password
Password Policy
Network Setup
Activate Network Access
Unconfigure Network Access
Remote Setup And Configuration
FW Update Settings
[ESC]=Exit [↑↓]=Select [ENTER]=Access
Full Unprovision

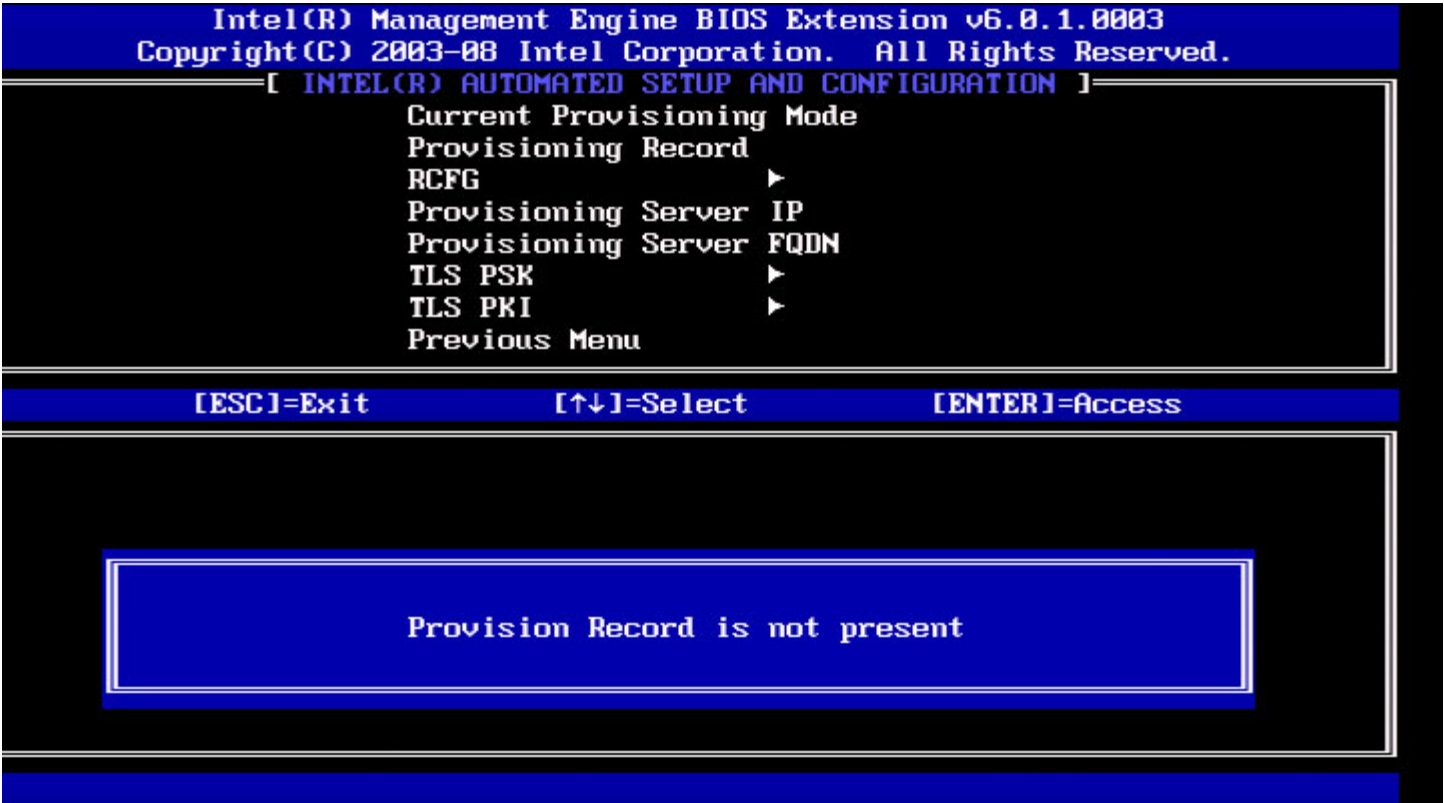
4. Unprovisioning in progress.

Remote Setup and Configuration

Under the Intel ME Platform Configuration menu, select **Automated Remote Setup and Configuration** and press **Enter**. The Intel ME Platform Configuration menu changes to the Automated Remote Setup and Configuration page.

ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
[INTEL(R) AUTOMATED SETUP AND CONFIGURATION]
Current Provisioning Mode
Provisioning Record
RCFG
Provisioning Server IPV4/IPV6
Provisioning Server FQDN
TLS PSK
TLS PKI
Previous Menu
[ESC]=Exit [↑↓]=Select [ENTER]=Access

Current Provisioning Mode

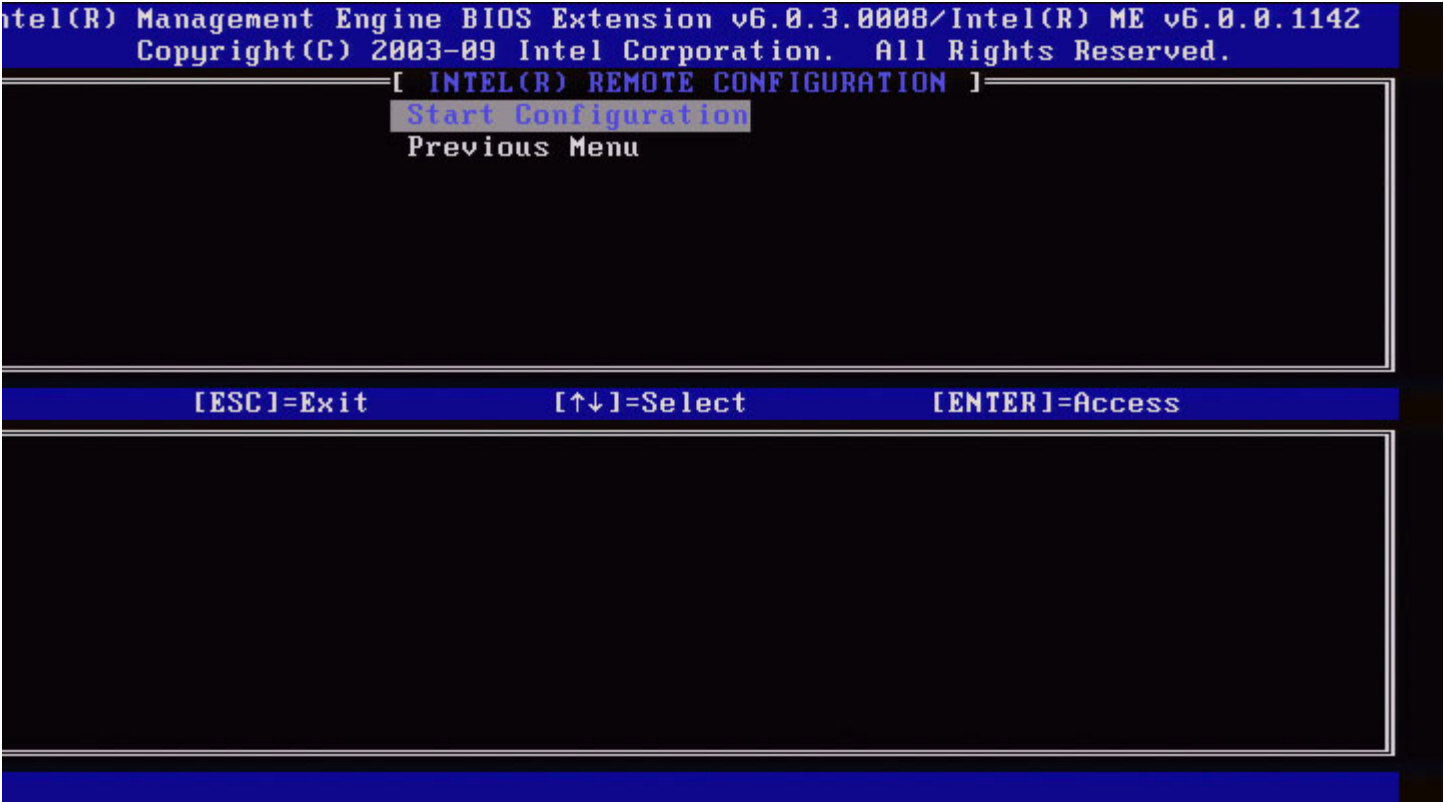
Under Automated Setup and Configuration, select **Current Provisioning Mode** and press **Enter**.
Current Provisioning Mode – Displays the current provisioning TLS Mode: None, PKI, or PSK.

Provisioning Record

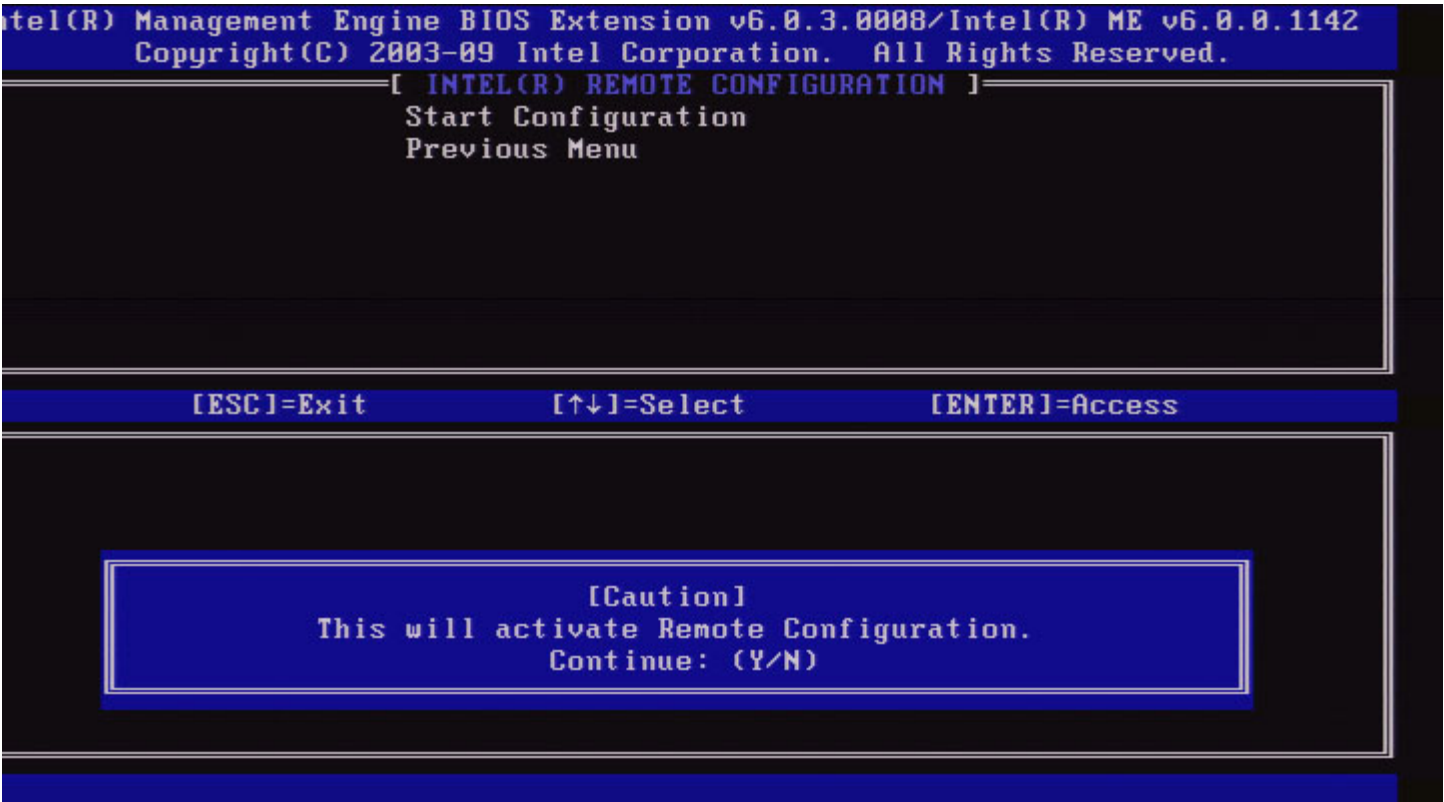
Under Automated Setup and Configuration, select **Provisioning Record** and press **Enter**.
Provisioning Record – Displays the system's provision PSK/PKI record data. If the data has not been entered, the Intel MEBx displays a message stating "*Provision Record not present*".

If the data is entered, the Provision record will display as below:

Option	Description
TLS provisioning mode	Displays the current configuration mode of the system: None, PSK or PKI.
Provisioning IP	The IP address of the setup and configuration server.
Date of Provision	Displays the date and time of the provisioning in the format MM/DD/YYYY at HH:MM.
DNS	Indicates whether the "PKI DNS Suffix" was configured in Intel MEBx before remote configuration took place or not. A value of 0 indicates that the DNS suffix was not configured and the firmware will rely on DHCP option 15 and compare this suffix to the FQDN in the Configuration Server's client certificate. A value of 1 indicates that the DNS suffix was configured and the firmware matched it against the DNS suffix in the Configuration Server's client certificate. Host Initiated – Indicates whether the setup and configuration process was initiated by the host: 'No' indicates that the setup and configuration process was NOT host-initiated, 'Yes' indicates the setup and configuration process was host-initiated (PKI only).
Hash Data	Displays the 40-character certificate hash data (PKI only).
Hash Algorithm	Describes the hash type. Currently, only SHA1 is supported. (PKI only).
IsDefault	Displays 'Yes' if the hash algorithm is the default algorithm selected. Displays 'No' if the hash algorithm is NOT the default algorithm used (PKI only).
FQDN	FQDN of the provisioning server mentioned in the certificate (PKI only).
Serial Number	The 32-character string that indicates the Certificate Authority serial numbers.
Time Validity Pass	Indicates whether the certificate passed the time validity check.

RCFG

Under the Intel Automated Remote Setup and Configuration menu, select **RCFG** and press **Enter**.
The Intel Automated Remote Setup and Configuration menu changes to the Intel Remote Configuration page.

```
ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
        Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.
                        [ INTEL(R) REMOTE CONFIGURATION ]
                          Start Configuration
                          Previous Menu

           [ESC]=Exit            [↑↓]=Select           [ENTER]=Access
```

Start Configuration

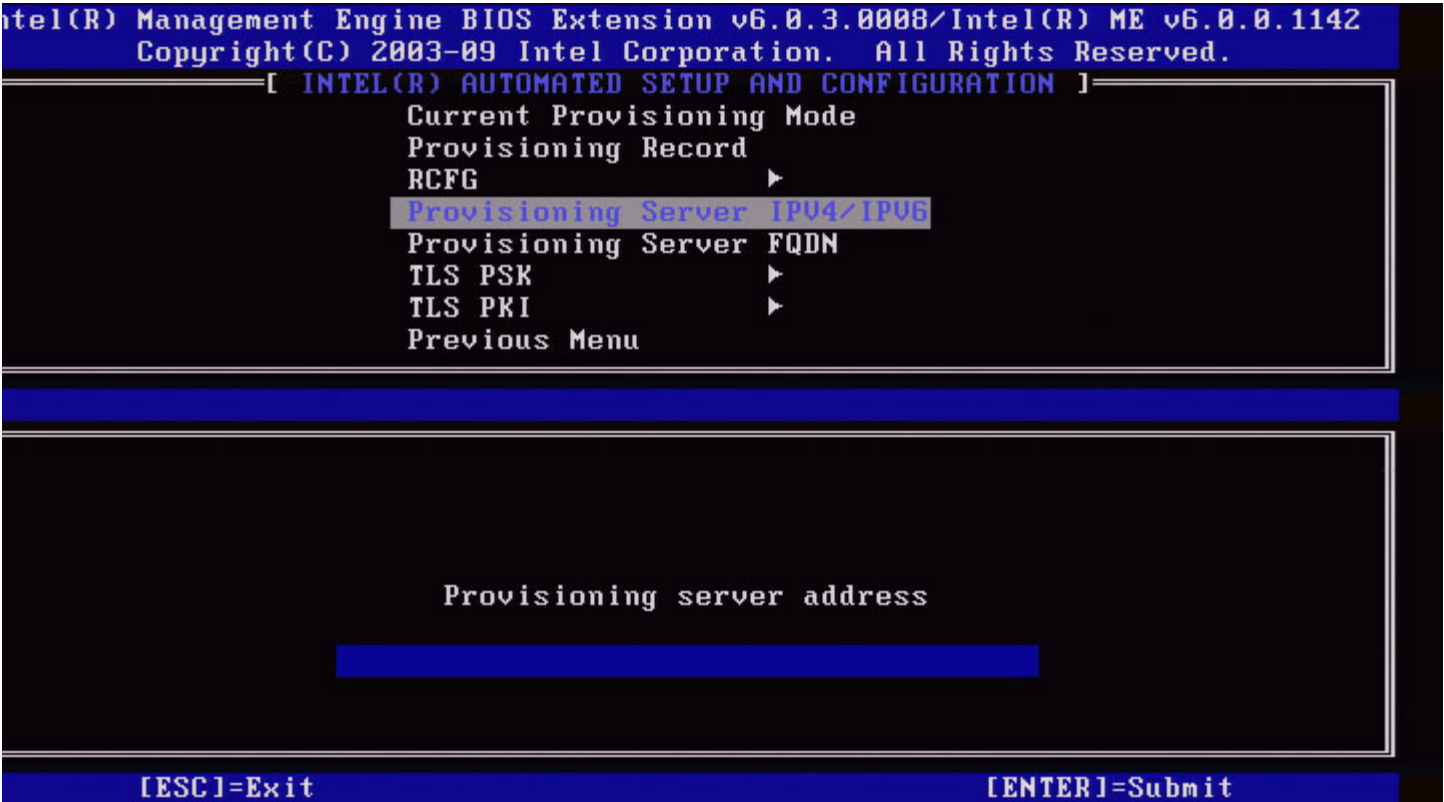
Under the Intel Remote Configuration menu, select **Start Configuration** and press **Enter**.
If Remote Configuration is not activated, Remote configuration cannot occur.
To activate (enable) remote configuration, select **Y**.

```
ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
        Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.
                        [ INTEL(R) REMOTE CONFIGURATION ]
                          Start Configuration
                          Previous Menu

           [ESC]=Exit            [↑↓]=Select           [ENTER]=Access

                                 [Caution]
                 This will activate Remote Configuration.
                             Continue: (Y/N)
```

Previous Menu

Under the Intel Remote Configuration menu, select **Previous Menu** and press **Enter**.
The Intel Remote Configuration menu changes to the Intel Automated Setup and Configuration page.

Provisioning Server IPv4/IPv6

Under the Intel Automated Setup and Configuration menu, select **Provisioning Server IPv4/IPv6** and press **Enter**.

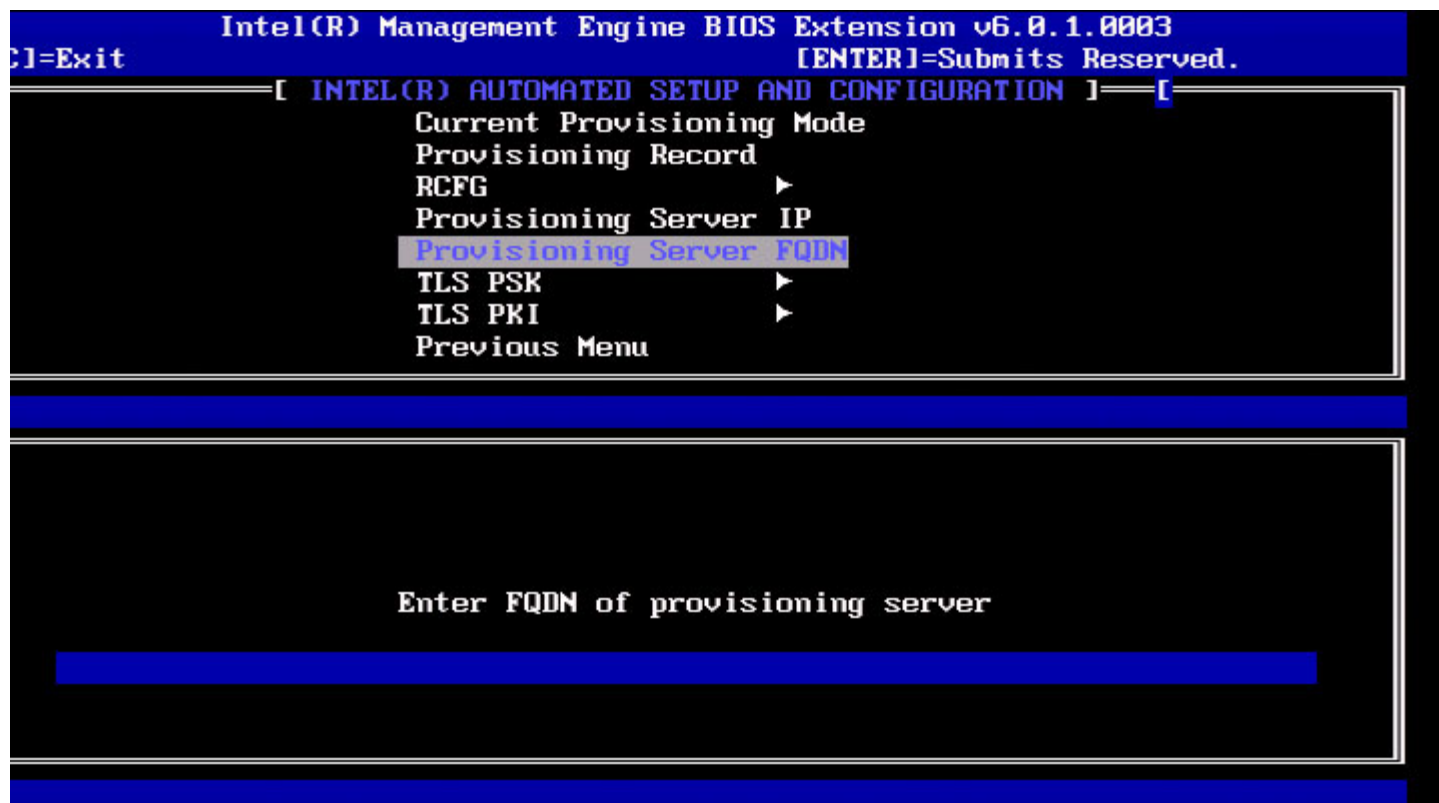
1. Type the provisioning server address and press **Enter**.

2. Type the provisioning server port number and press **Enter**.

The port number (0 – 65535) of the Intel AMT provisioning server. The default port number is 9971.

```
ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
        Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.
[ INTEL(R) AUTOMATED SETUP AND CONFIGURATION ]
Current Provisioning Mode
Provisioning Record
RCFG                 ►
Provisioning Server IPV4/IPV6
Provisioning Server FQDN
TLS PSK              ►
TLS PKI              ►
Previous Menu

Port number (0-65535)

9971

[ESC]=Exit                                        [ENTER]=Submit
```

Provisioning Server FQDN

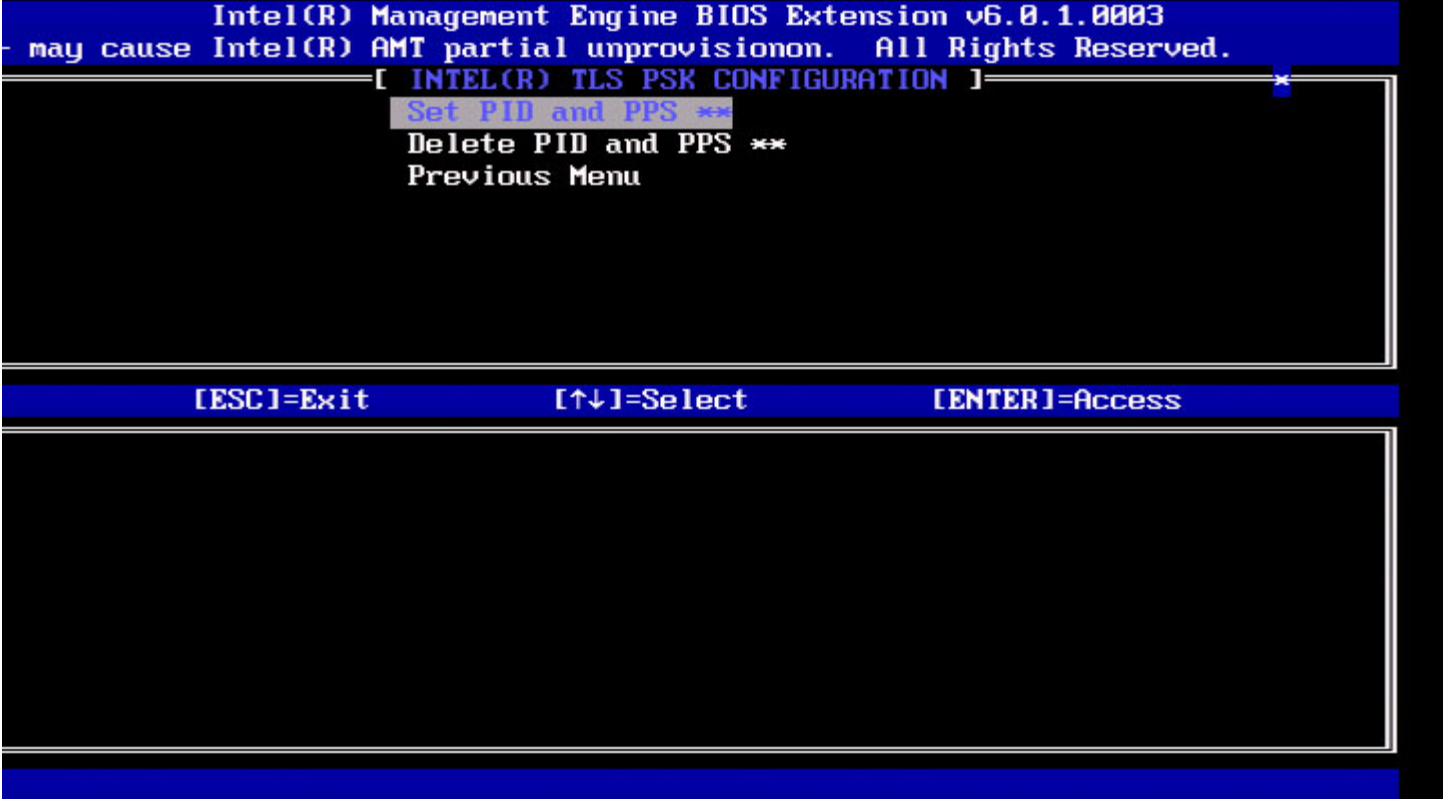
Under the Intel Automated Remote Setup and Configuration menu, select **Provisioning Server FQDN** and press **Enter**. Type the FQDN of the provisioning server and press **Enter**.

```
Intel(R) Management Engine BIOS Extension v6.0.1.0003
C]=Exit                                  [ENTER]=Submits Reserved.
[ INTEL(R) AUTOMATED SETUP AND CONFIGURATION ]
Current Provisioning Mode
Provisioning Record
RCFG                 ►
Provisioning Server IP
Provisioning Server FQDN
TLS PSK              ►
TLS PKI              ►
Previous Menu

Enter FQDN of provisioning server
```

FQDN of the provisioning server mentioned in the certificate (PKI only). This is also the FQDN of the server that AMT sends hello packets to for both PSK and PKI.

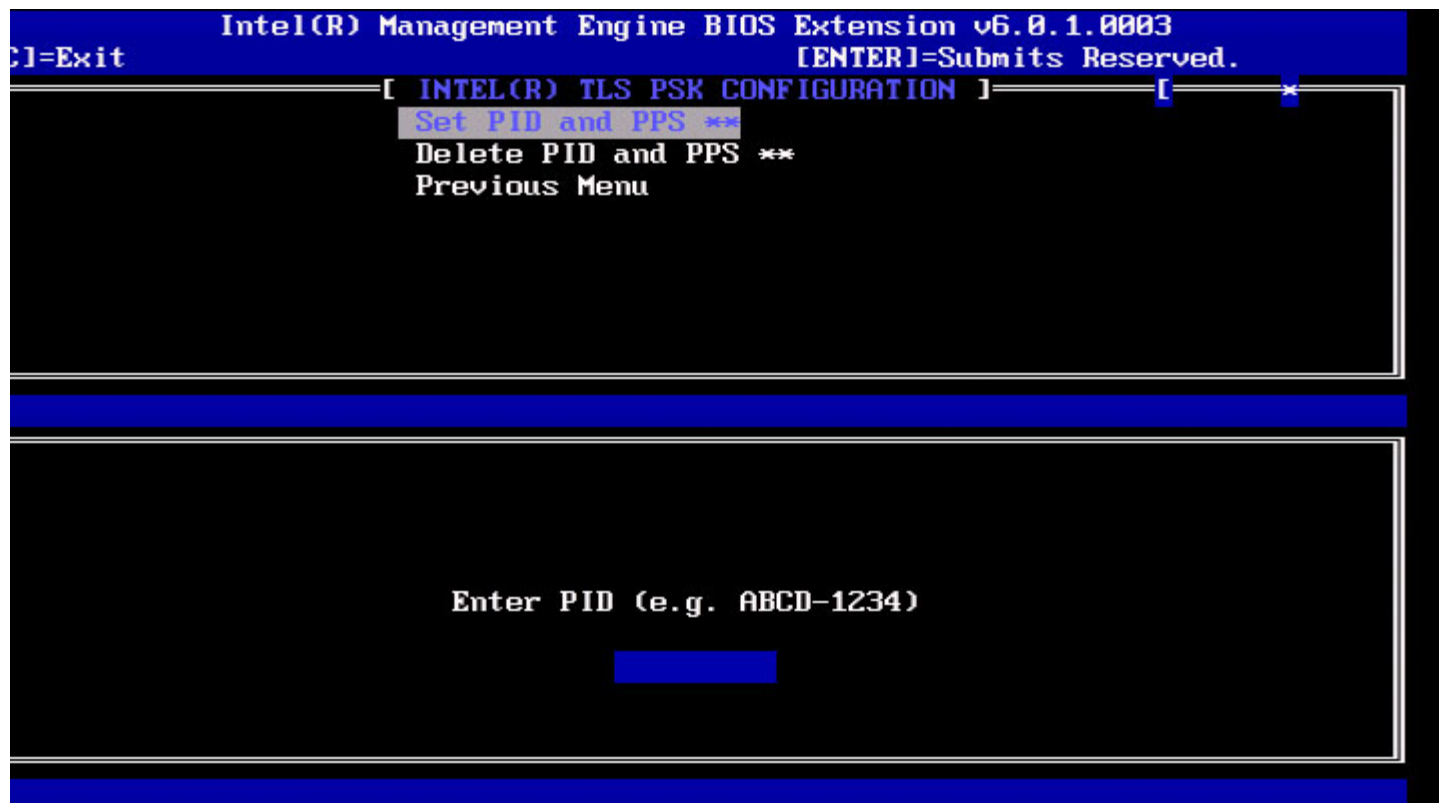
TLS PSK

Under the Intel Automated Setup and Configuration menu, select **TLS PSK** and press **Enter**.
The Intel Automated Remote Setup and Configuration menu changes to the Intel TLS PSK Configuration page.

This submenu contains the settings for TLS PSK configuration settings

Intel(R) Management Engine BIOS Extension v6.0.1.0003
- may cause Intel(R) AMT partial unprovisionon. All Rights Reserved.
[INTEL(R) TLS PSK CONFIGURATION]
Set PID and PPS **
Delete PID and PPS **
Previous Menu
[ESC]=Exit [↑↓]=Select [ENTER]=Access

Set PID and PPS

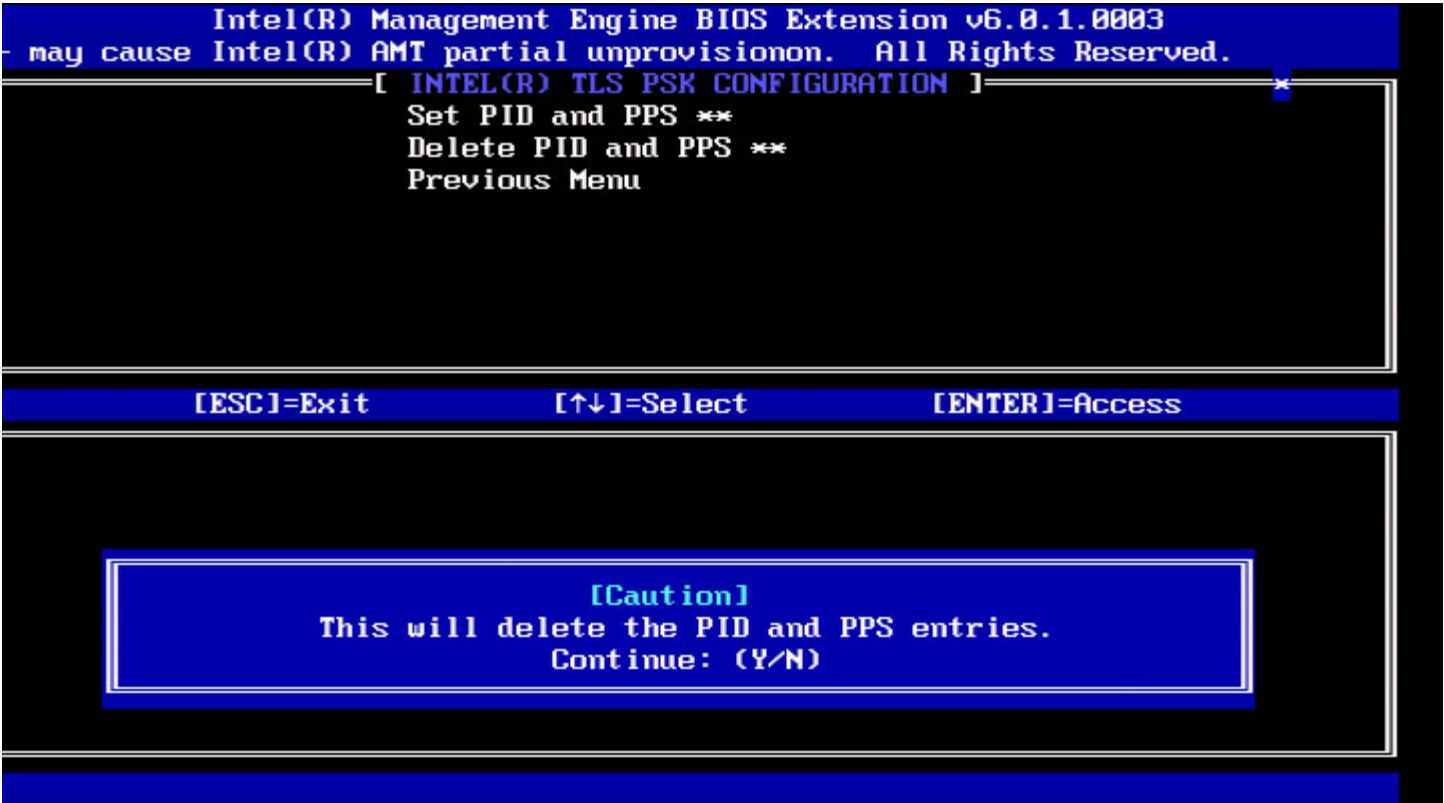
Under the Intel TLS PSK Configuration menu, select **Set PID and PPS** and press **Enter**.
Type PID and press **Enter**.
Type PPS and press **Enter**.

Intel(R) Management Engine BIOS Extension v6.0.1.0003
]=Exit [ENTER]=Submits Reserved.
[INTEL(R) TLS PSK CONFIGURATION]
Set PID and PPS **
Delete PID and PPS **
Previous Menu
Enter PID (e.g. ABCD-1234)

Setting the PID/PPS will cause a partial unprovision if the setup and configuration is “In-process”. The PID and PPS should be entered in the dash format. (Ex. PID: 1234-ABCD ; PPS: 1234-ABCD-1234-ABCD-1234-ABCD-1234-ABCD).

 NOTE: A PPS value of ‘0000-0000-0000-0000-0000-0000-0000-0000’ will not change the setup configuration state. If this value is used, the setup and configuration state will remain ‘Not-started’.

Deleting PID and PPS

Under the Intel TLS PSK Configuration menu, select **Delete PID and PPS** and press **Enter**.
This option deletes the current PID and PPS stored in Intel ME. If the PID and PPS were not entered previously, the Intel MEBx will return an error message.

To delete the PID and PPS entries, select **Y**, else **N**.

Previous Menu

Under the Intel TLS PSK Configuration menu select **Previous Menu** and press **Enter**.
The Intel TLS PSK Configuration menu changes to the Intel Automated Setup and Configuration page.

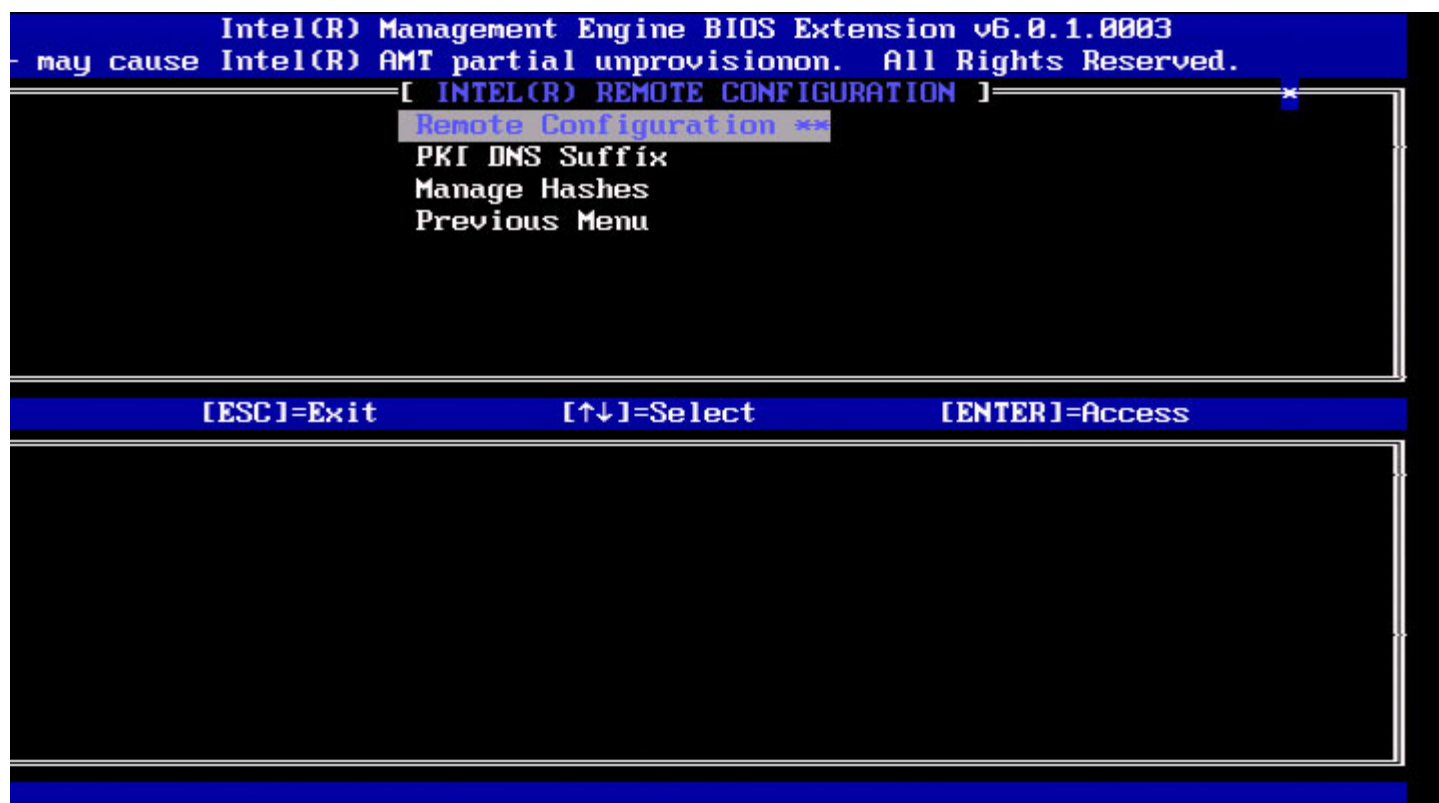
TLS PKI

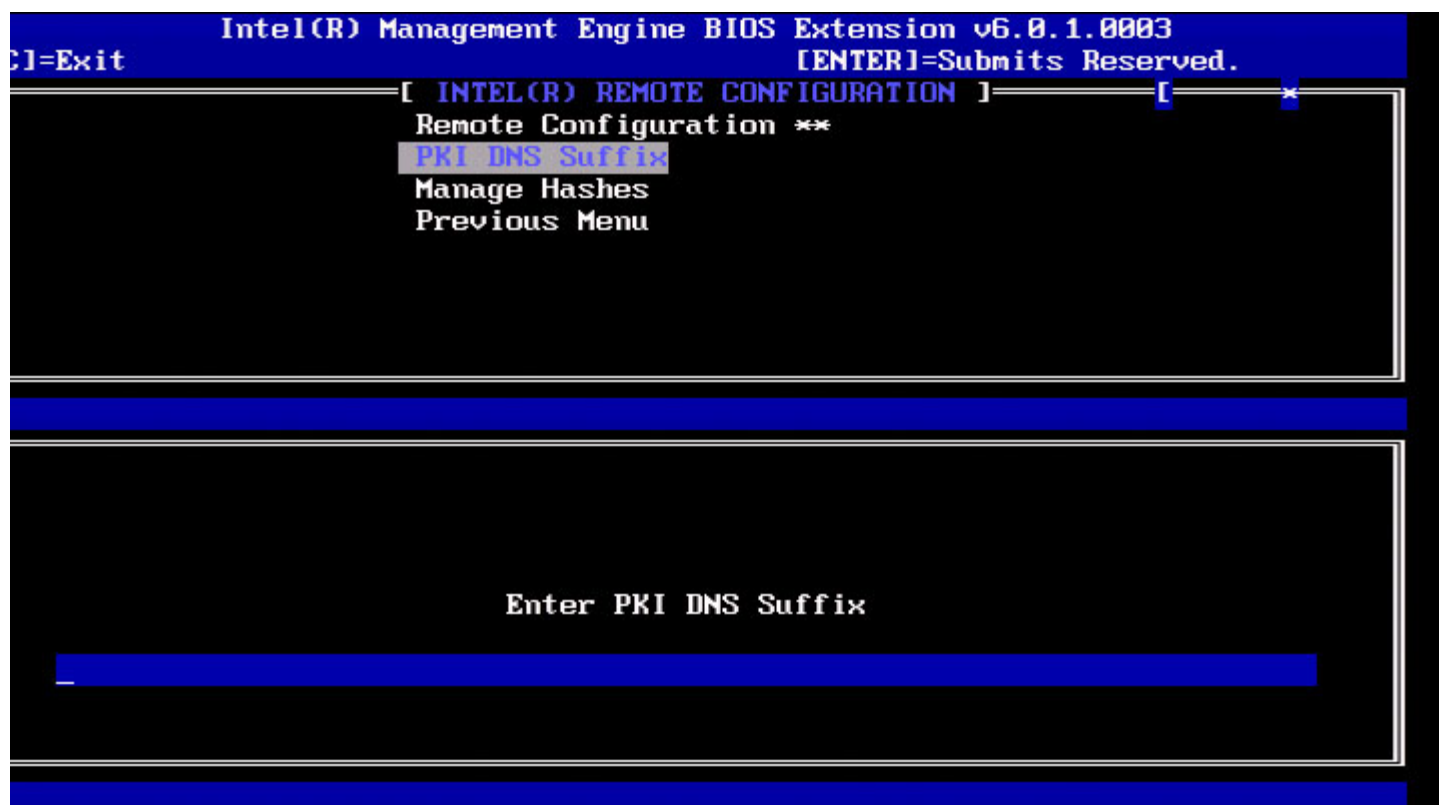
Under the Intel Automated Setup and Configuration menu, select **TLS PKI** and press **Enter**.
The Intel Automated Remote Setup and Configuration menu changes to the Intel Remote Configuration page.

Remote Configuration

Under the Intel Remote Configuration menu, select **Remote Configuration** and press **Enter**.
Enabling/Disabling Remote configuration will cause a partial un-provision if the setup and configuration server is “In-process”.

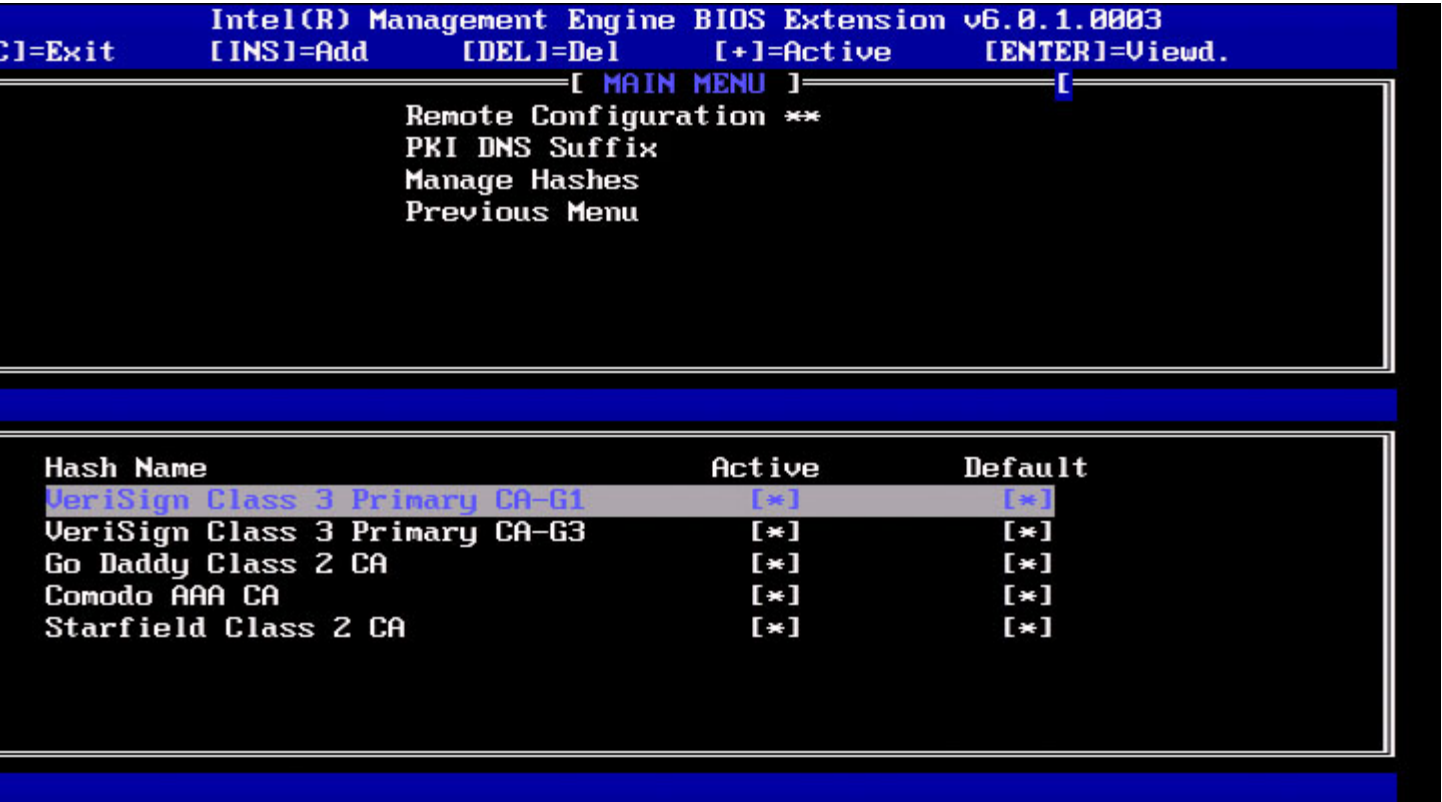
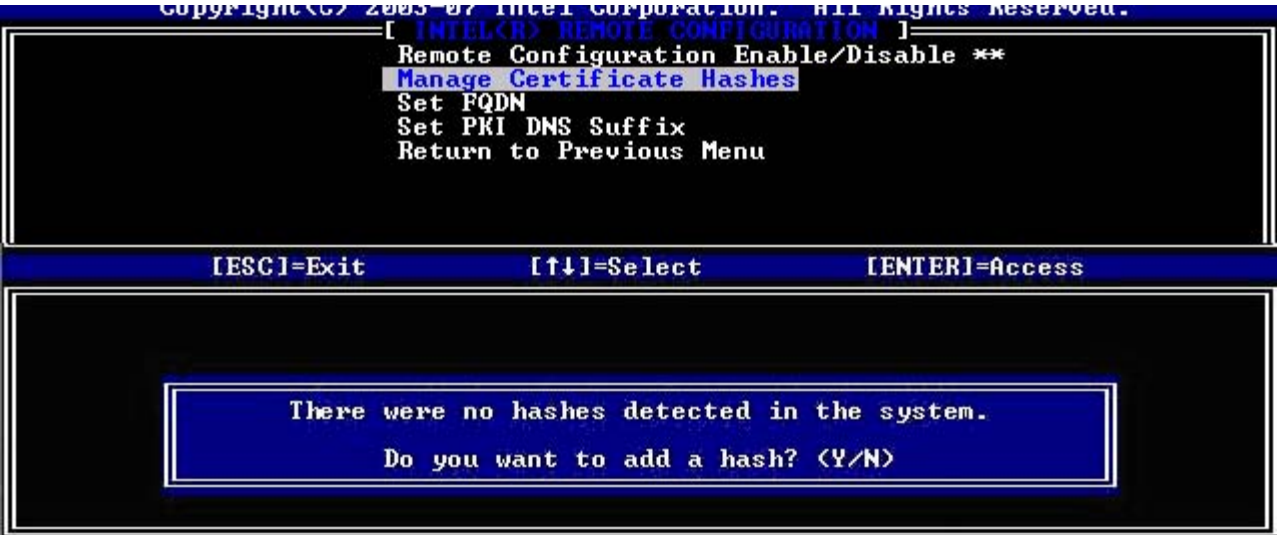
Option	Description
Disabled	Remote configuration is disabled. Only ‘Remote Configuration’ and ‘Previous Menu’ items are visible.
Enabled	Remote configuration is enabled, this will show additional fields.

To Disabled: Select **Disabled** and press **Enter**.
To Enabled: Select **Enabled** and press **Enter**.

PKI DNS Suffix

Under the Intel Remote Configuration menu, select **PKI DNS Suffix** and press **Enter**.
Type the PKI DNS Suffix and press **Enter**.

Manage Hashes

Under the Intel Remote Configuration menu, select **Manage Hashes** and press **Enter**.

Intel(R) Management Engine BIOS Extension v6.0.1.0003
]=Exit [INS]=Add [DEL]=Del [+]=Active [ENTER]=Viewd.
[MAIN MENU]
Remote Configuration **
PKI DNS Suffix
Manage Hashes
Previous Menu

Hash Name	Active	Default
VeriSign Class 3 Primary CA-G1	[*]	[*]
VeriSign Class 3 Primary CA-G3	[*]	[*]
Go Daddy Class 2 CA	[*]	[*]
Comodo AAA CA	[*]	[*]
Starfield Class 2 CA	[*]	[*]

Selecting this option will enumerate the hashes in the system and display the Hash Name and the active and default state. If the system does not contain any hashes yet, Intel MEBx will display the following screen.

Answering 'Yes' will begin the process of adding customized hash. Please see the next section below.
The Manage Certificate Hash screen provides keyboard controls for managing the hashes on the system. The following keys are valid when in the Manage Certificate Hash menu.

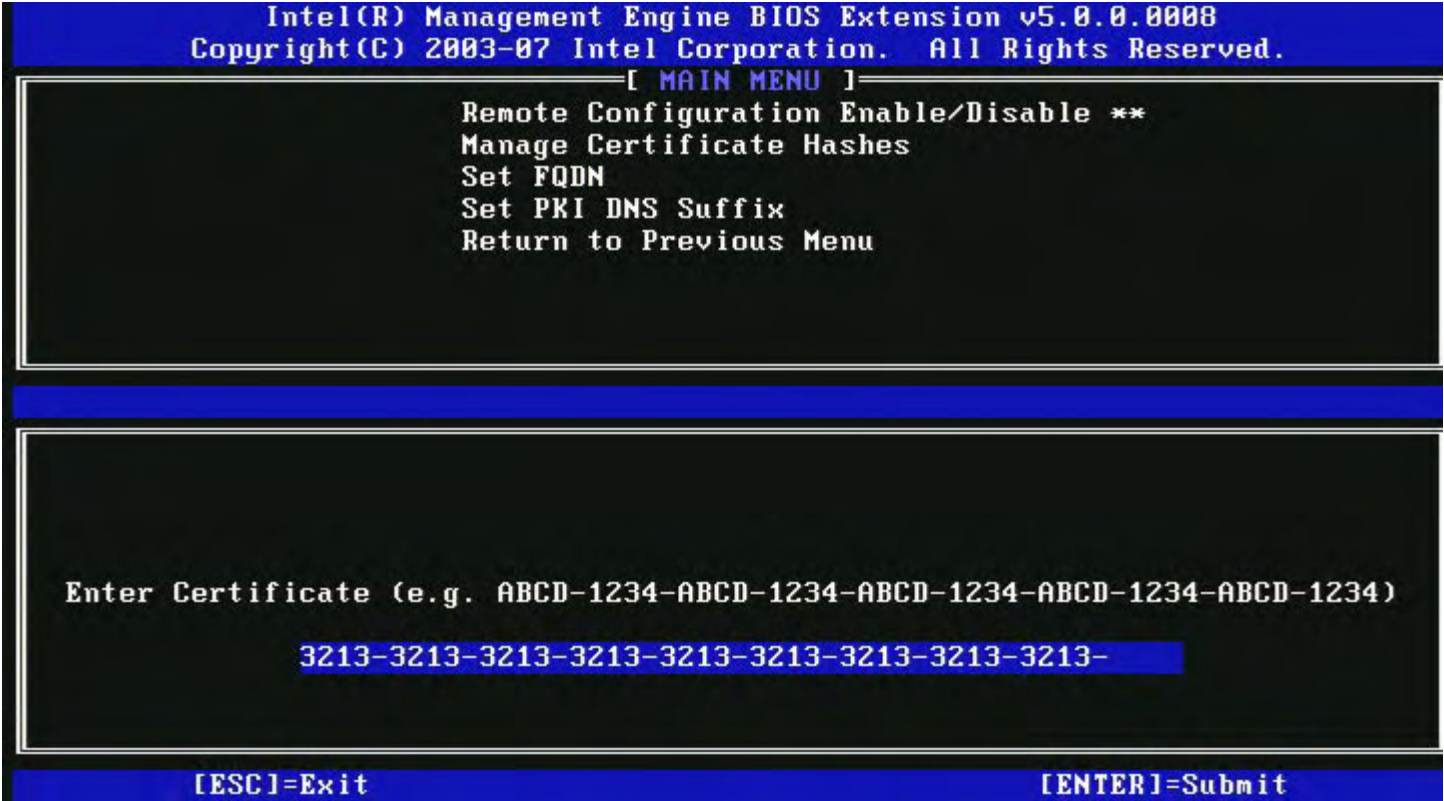
Key	Description
Escape	Exits from the menu.
Insert	Adds a customized certificate hash to the system.
Delete	Deletes the currently selected certificate hash from the system.
+	Changes the active state of the currently selected certificate hash.
Enter	Displays the details of the currently selected certificate hash.

Adding Customized Hash

When the **Insert** key is pressed in the Manage Certificate Hash screen, the following screen is displayed:

```
Intel(R) Management Engine BIOS Extension v5.0.0.0008
Copyright(C) 2003-07 Intel Corporation.  All Rights Reserved.
[ MAIN MENU ]
Remote Configuration Enable/Disable **
Manage Certificate Hashes
Set FQDN
Set PKI DNS Suffix
Return to Previous Menu

Enter Hash Name
_

[ESC]=Exit                                        [ENTER]=Submit
```

To add a customized certificate hash: Type the hash name (up to 32 characters). When you press **Enter**, you are prompted to enter the certificate hash value.

```
Intel(R) Management Engine BIOS Extension v5.0.0.0008
Copyright(C) 2003-07 Intel Corporation.  All Rights Reserved.
[ MAIN MENU ]
Remote Configuration Enable/Disable **
Manage Certificate Hashes
Set FQDN
Set PKI DNS Suffix
Return to Previous Menu

Enter Certificate (e.g. ABCD-1234-ABCD-1234-ABCD-1234-ABCD-1234-ABCD-1234)
3213-3213-3213-3213-3213-3213-3213-3213-3213-

[ESC]=Exit                                        [ENTER]=Submit
```

The Certificate hash value is a hexadecimal number (for SHA-1 it is 20 bytes for SHA-2 it is 32 bytes). If the value is not entered in the correct format, the message “Invalid Hash Certificate Entered - Try Again” is displayed. When you press

‘**Enter**’, you are prompted to set the active state of the hash.

```
Intel(R) Management Engine BIOS Extension v5.0.0.0008
Copyright(C) 2003-07 Intel Corporation.  All Rights Reserved.
[ MAIN MENU ]
Remote Configuration Enable/Disable **
Manage Certificate Hashes
Set FQDN
Set PKI DNS Suffix
Return to Previous Menu

Enter C                                                D-1234)
        Set this hash certificate as active? (Y/N)

[ESC]=Exit                                   [ENTER]=Submit
```

Your response sets the active state of the customized hash as follows:

- **Yes** – The customized hash will be marked as active.
- **No (Default)** – The customized hash will add to the EPS but will not be active.

Deleting a Hash

When the **Delete** key is pressed in the Manage Certificate Hash screen, the following screen is displayed:

 NOTE: A certificate hash that is set to Default cannot be deleted.

```
Intel(R) Management Engine BIOS Extension v5.0.0.0008
Copyright(C) 2003-07 Intel Corporation.  All Rights Reserved.
[ MAIN MENU ]
Remote Configuration Enable/Disable **
Manage Certificate Hashes
Set FQDN
Set PKI DNS Suffix
Return to Previous Menu

Hash Name                          Active      Default
VeriSign Class 3 Primary CA-G1      [*]         [*]
VeriSign Class 3 Primary CA-G3      [*]         [*]
Go Da
Comod        Delete this certificate hash? (Y/N)
Starf
name

[ESC]=Exit   [INS]=Add   [DEL]=Del   [+]=Active   [ENTER]=View
```

This option allows deleting of the selected certificate hash.

- **Yes** – Intel MEBx sends the firmware a message to delete the selected hash.
- **No** – Intel MEBx does not delete the selected hash, and returns to Remote Configuration.

Changing the Active State

When the '+' key is pressed in the Manage Certificate Hashes screen, the following screen is displayed:

Answering **Y** toggles the active state of the currently selected certificate hash. Setting a hash as active indicates that the hash is available for use during PSK provisioning.

Viewing a Certificate Hash

When the **Enter** key is pressed in the Manage Certificate Hash screen, the following screen is displayed:

The details of the selected certificate hash are displayed to the user and include the following:

- Hash Name
- Certificate Hash Data
- Active and Default States

Previous Menu

Under the Intel Remote Configuration menu, select **Previous Menu** and press **Enter**.
The Intel Remote Configuration menu changes to the Intel Automated Setup and Configuration page.

FW Update Settings

Under the Intel ME Platform Configuration menu, select **FW Update Settings** and press **Enter**.
The Intel ME Platform Configuration menu changes to the FW Update Settings page.

Intel(R) Management Engine BIOS Extension v6.0.1.0003
Copyright(C) 2003-08 Intel Corporation. All Rights Reserved.
[FW Update Settings]
Local FW Update
Secure FW Update
Previous Menu
[ESC]=Exit [↑↓]=Select [ENTER]=Access

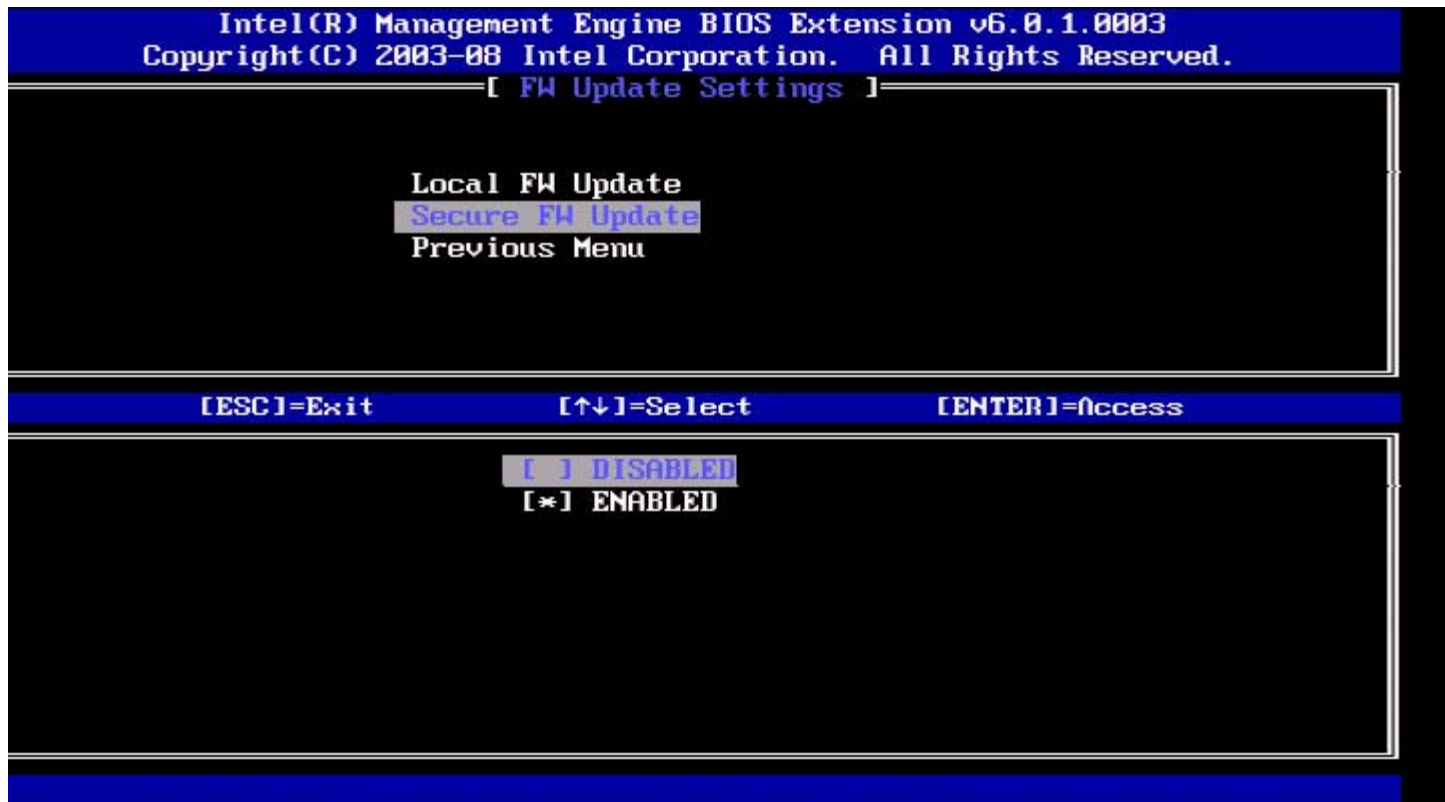
Local FW Update

Under the FW Update Settings menu, select **Local FW Update** and press **Enter**.

Intel ME Firmware Local Update provides the capability to allow or prevent firmware local update in the field. When the “Enabled” option is selected, the IT-admin is able to update the Intel ME firmware locally via the local Intel Management Engine interface or via the local secure interface.
This local firmware update does not require an administrator user name and password. Therefore, once the local update is complete, this setting is automatically set to “Disabled” by the Intel ME firmware. This option must be set to “Enabled” when

a local update is needed.

Secure FW Update

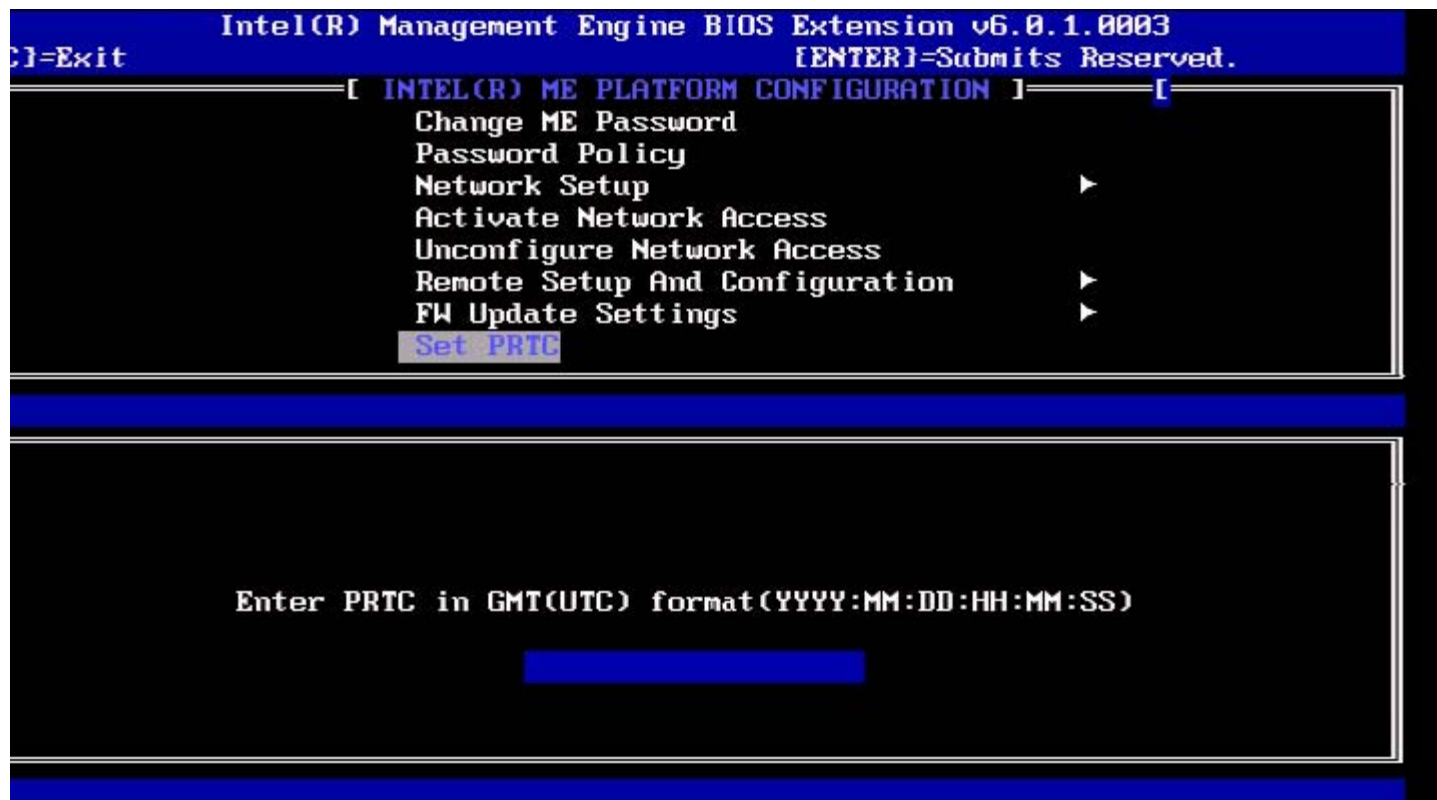
Under the FW Update Settings menu, select **Secure FW Update** and press **Enter**.

This option allows the user to enable or disable secure firmware updates. The Secure Firmware Update function requires an administrator user name and password. If the administrator user name and password are not supplied, the firmware cannot be updated.
When the Secure Firmware Update feature is enabled, the IT administrator can update the firmware using the secure method. Secure firmware updates are performed via the LMS driver.

Previous Menu

Under the FW Update Settings menu, select **Previous Menu** and press **Enter**.
The FW Update Settings menu changes to the Intel ME Platform Configuration page.

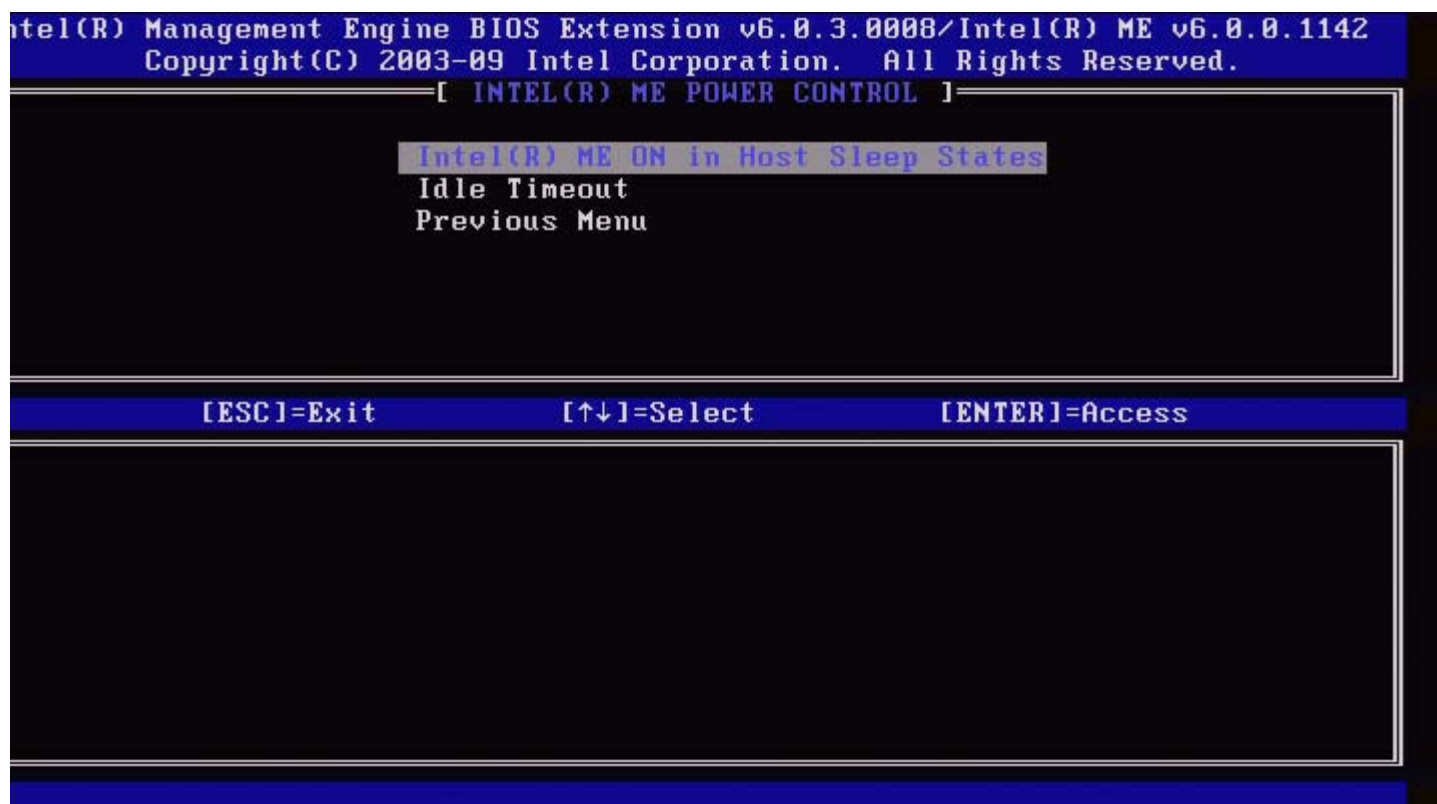
Set PRTC

Under the Intel ME Platform Configuration menu, select **Set PRC** and press **Enter**.

```
Intel(R) Management Engine BIOS Extension v6.0.1.0003
]=Exit                                    [ENTER]=Submits Reserved.
[ INTEL(R) ME PLATFORM CONFIGURATION ]
    Change ME Password
    Password Policy
    Network Setup                          ►
    Activate Network Access
    Unconfigure Network Access
    Remote Setup And Configuration         ►
    FW Update Settings                     ►
    Set PRTC

Enter PRTC in GMT(UTC) format(YYYY:MM:DD:HH:MM:SS)
```

Valid date range: 1/1/2004 – 1/4/2021. Setting the PRTC value is used for virtually maintaining PRTC during the power-off (G3) state.
Type PRTC in GMT (UTC) format (YYYY:MM:DD:HH:MM:SS) and press **Enter**.

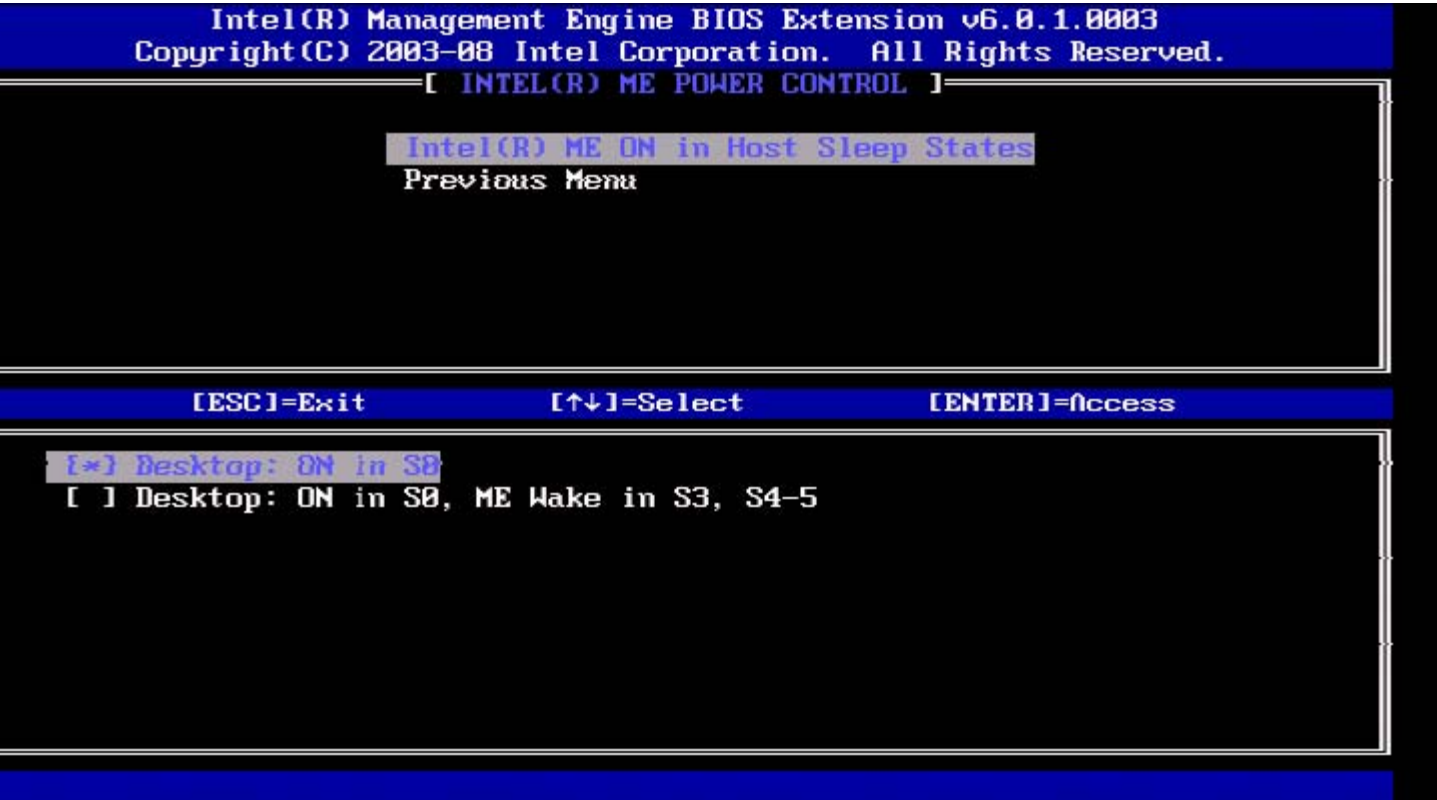
Power Control

Under the Intel ME Platform Configuration menu, select **Power Control** and press **Enter**.
The Intel ME Platform Configuration menu changes to the Intel Power Control page.

```
tel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
      Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.
[ INTEL(R) ME POWER CONTROL ]

    Intel(R) ME ON in Host Sleep States
    Idle Timeout
    Previous Menu

[ESC]=Exit          [↑↓]=Select          [ENTER]=Access
```

To comply with ENERGY STAR* and EUP LOT6 requirements, the Intel ME can be turned off in various sleep states. The Intel ME Power Control menu configures the Intel ME platform power-related policies.

Intel ME ON in Host Sleep States

Under the Intel ME Power Control menu, select **Intel ME ON in Host Sleep States** and press **Enter**.

```
Intel(R) Management Engine BIOS Extension v6.0.1.0003
Copyright(C) 2003-08 Intel Corporation.  All Rights Reserved.
[ INTEL(R) ME POWER CONTROL ]

Intel(R) ME ON in Host Sleep States
Previous Menu

[ESC]=Exit          [↑↓]=Select          [ENTER]=Access

[*] Desktop: ON in S0
[ ] Desktop: ON in S0, ME Wake in S3, S4-5
```

The selected power package determines when the Intel ME is turned ON. The default power package can be modified by using FITC or by FPT.
The end user administrator can choose which power package to use depending on the systems usage.

The following table illustrates the details of the power packages.
With Intel ME WoL, after the time-out timer expires, the Intel ME remains in the M-off state until a command is sent to the ME. After this command has been sent, the Intel ME will transition to an M0 or M3 state and will respond to the next command that is sent. A ping to the Intel ME will also cause the Intel ME to go into an M0 or M3 state.

The Intel ME takes a short time to transition from the M-off state to the M0 or M3 state. During this time, Intel AMT will not respond to any Intel ME commands. When the Intel ME has reached the M0 or M3 state, the system will respond to Intel ME commands.

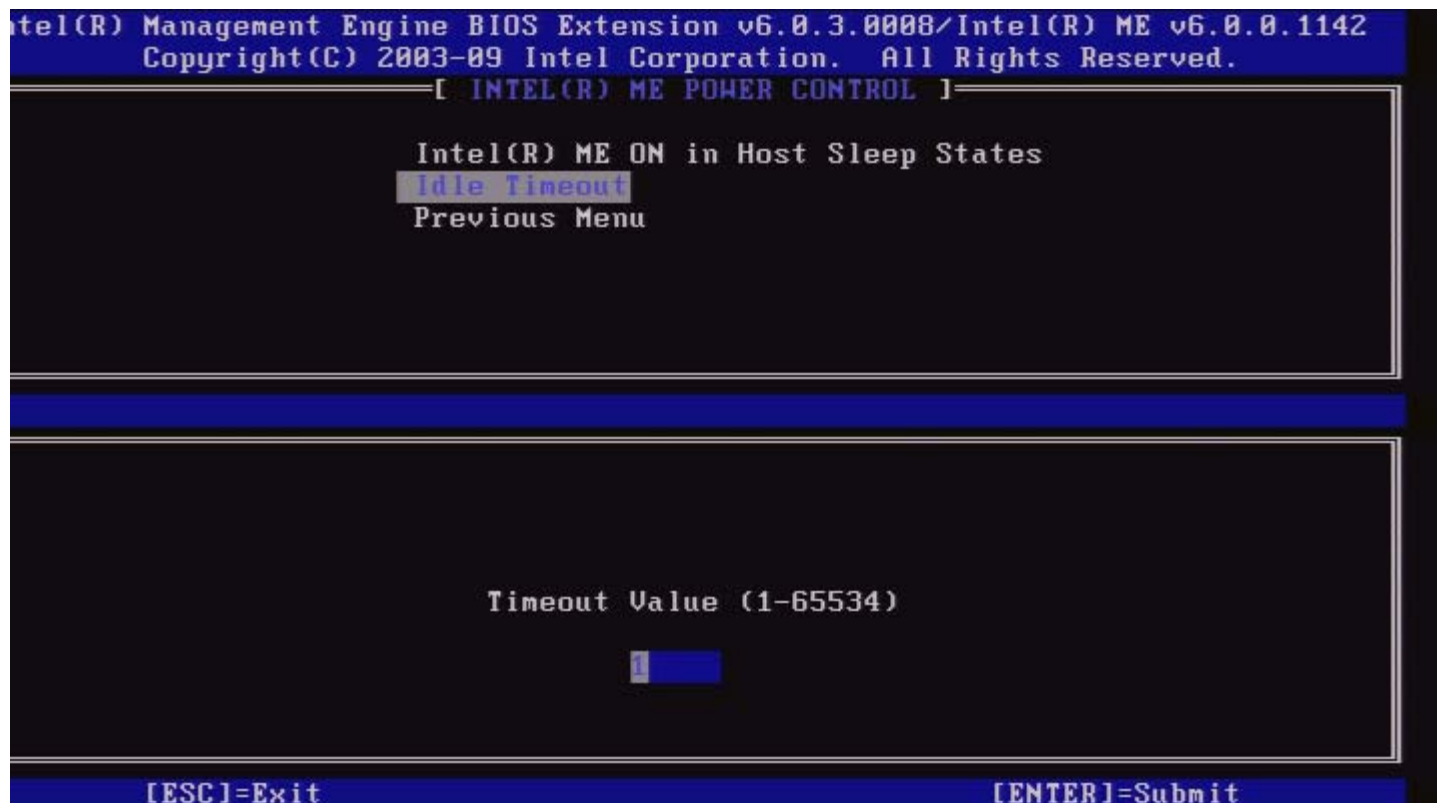
Power Package	1	2
S0	ON	ON
S3	OFF	ON/ ME WoL
S4/S5	OFF	ON/ ME WoL

Select the desired Power Policy and press **Enter**.

 NOTE: Putting a system into the provisioning state will automatically switch to Power Package 2. This can later be changed through WebUI, the management console, or MEBx.

Idle Time Out

Under the Intel ME Power Control menu, select **Idle Time Out** and press **Enter**.

```
ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
        Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.
[ INTEL(R) ME POWER CONTROL ]

                    Intel(R) ME ON in Host Sleep States
                    Idle Timeout
                    Previous Menu

                        Timeout Value (1-65534)

                                1

        [ESC]=Exit                                    [ENTER]=Submit
```

This setting is used to enable the Intel ME Wake on and to define the Intel ME idle timeout in M3 state. The value should be entered in minutes. The value indicates the amount of time that the Intel ME is allowed remain idle in M3 before transitioning to the M-off state.

 NOTE: If the Intel ME is in M0, it will NOT transition to M-off.

Previous Menu

Under the Intel ME Platform Configuration menu, select **Previous Menu** and press **Enter**.
The Intel ME Power Control menu changes to the Intel ME Platform Configuration page.

* Information on this page provided by Intel.

Back to Contents Page

AMT Configuration

After you completely configure the Intel® Management Engine (ME) feature, you must reboot before configuring the Intel AMT for a clean system boot. Select the **Intel AMT configuration** option from the **Management Engine BIOS Extension (MEBx)** main menu. This feature allows you to configure an Intel AMT-capable computer to support the Intel AMT management features.

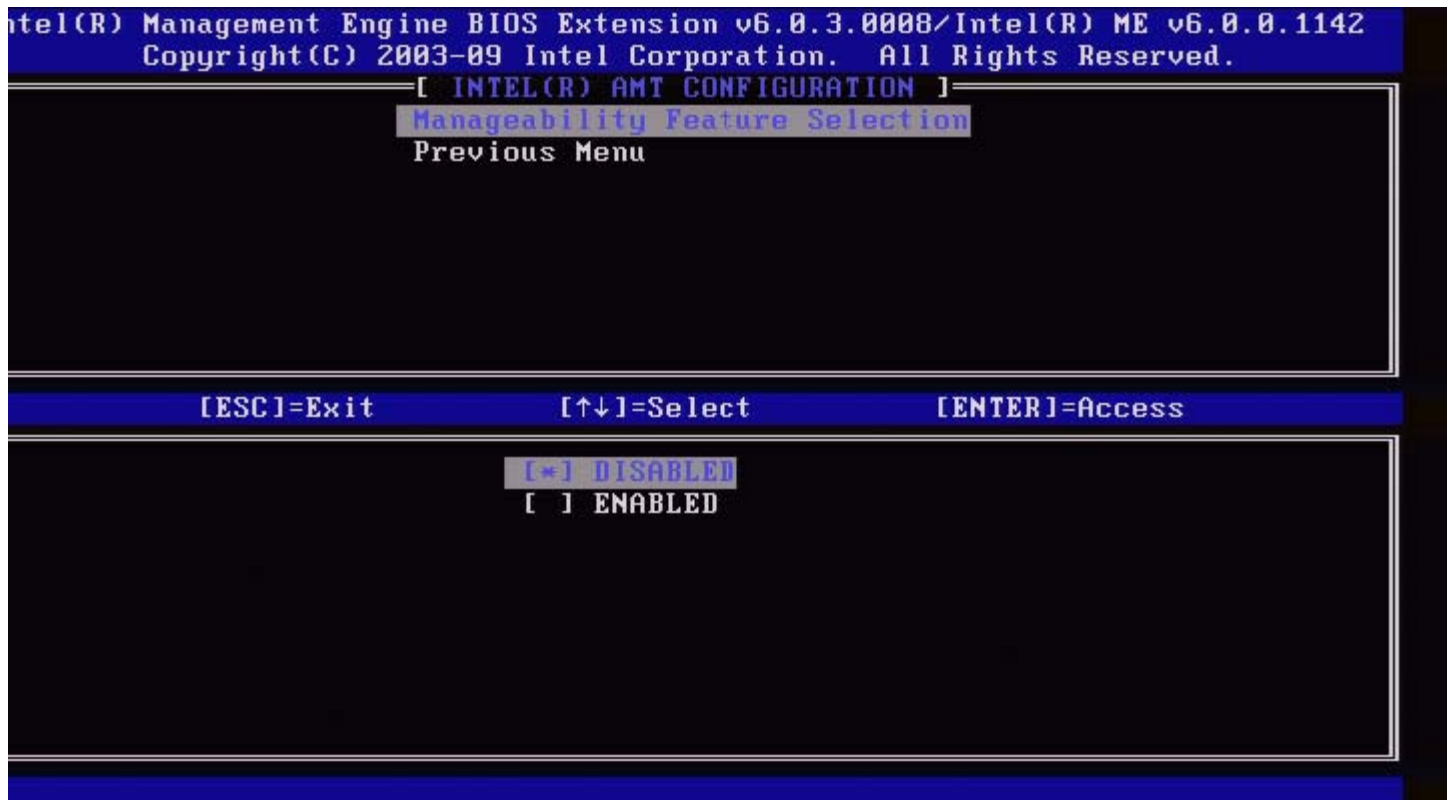
 NOTE: You need to have a basic understanding of networking and computer technology terms, such as TCP/IP, DHCP, VLAN, IDE, DNS, subnet mask, default gateway, and domain name. Explaining these terms is beyond the scope of this document.

The **Intel AMT Configuration** page appears. Below are quick links to the various sections.

The **Intel AMT Configuration** page contains the user-configurable options listed below.

Manageability Feature Selection

Under the Main Menu, select **Intel AMT Configuration** and press **Enter**. The Main Menu changes to the Intel AMT Configuration page.
Under the Intel AMT Configuration menu, select **Manageability Feature Selection** and press **Enter**.

ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
[INTEL(R) AMT CONFIGURATION]
Manageability Feature Selection
Previous Menu
[ESC]=Exit [↑↓]=Select [ENTER]=Access
[*] DISABLED
[ ] ENABLED

When the Manageability Feature Selection is enabled, the Intel ME manageability feature menu will be shown. Leaving it disabled means that manageability will not be enabled.

SOL/IDER

Under the Intel AMT Configuration page (with Intel AMT enabled), select **SOL/IDER** and press **Enter**.
The Intel AMT Configuration page changes to the SOL/IDER page.

Username and Password

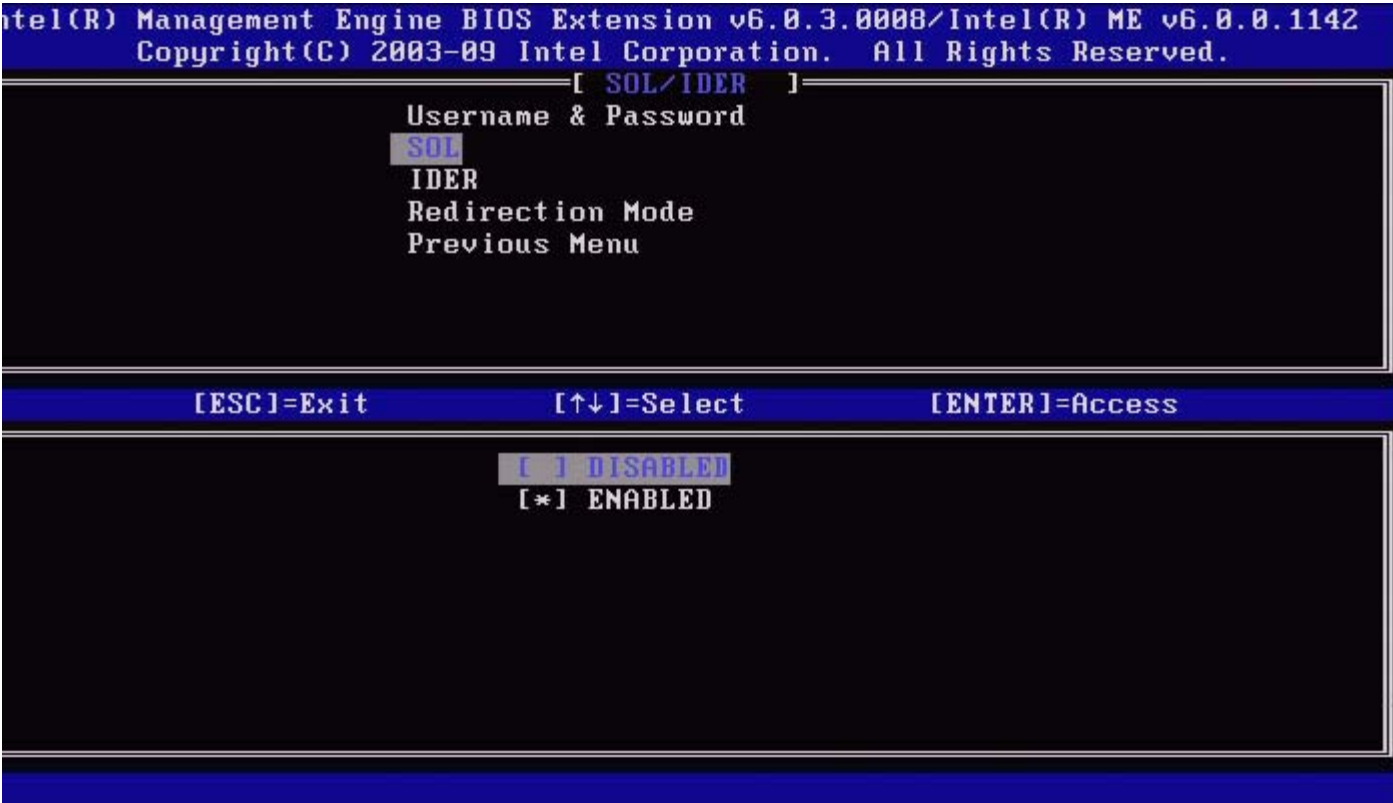
Under the SOL/IDER page select, **Username and Password** and press **Enter**.

This option provides the user authentication for SOL/IDER session. If Kerberos* is used, this option should be set to DISABLED. The user authentication is handled through Kerberos. If Kerberos is not used, the IT administrator has the choice to enable or disable user authentication on SOL/IDER session.

Option	Description
Enabled	Username and Password is enabled
Disabled	Username and Password is disabled.

SOL

Under the SOL/IDER page, select **SOL** and press **Enter**.

```
ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
        Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.
[ SOL/IDER ]
Username & Password
SOL
IDER
Redirection Mode
Previous Menu

[ESC]=Exit          [↑↓]=Select          [ENTER]=Access

[ ] DISABLED
[*] ENABLED
```

SOL allows the console input/output of an Intel AMT-managed client to be redirected to a management server console (if the client system supports SOL). If the system does not support SOL, this value cannot enable it.

Option	Description
Enabled	SOL is enabled
Disabled	SOL is disabled.

 NOTE: Disabling SOL does not remove this feature but only blocks it from being used.

IDER

Under the SOL/IDER page, select **IDER** and press **Enter**.

```
ntel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
        Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.
[ SOL/IDER ]
Username & Password
SOL
IDER
Redirection Mode
Previous Menu

[ESC]=Exit          [↑↓]=Select          [ENTER]=Access

[ ] DISABLED
[*] ENABLED
```

IDE-R allows an Intel AMT-managed client to be booted by a management console from a remote disk image. If the client system does not support IDE-R, this value cannot enable it.

Option	Description
Enabled	IDER is enabled
Disabled	IDER is disabled.

 NOTE: Disabling IDER does not remove this feature but only blocks it from being used.

Redirection Mode

Under the SOL/IDER page select, **Redirection Mode** and press **Enter**.

tel(R) Management Engine BIOS Extension v6.0.3.0008/Intel(R) ME v6.0.0.1142
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.

[SOL/IDER]

Username & Password
SOL
IDER
Redirection Mode
Previous Menu

[ESC]=Exit [↑↓]=Select [ENTER]=Access

[*] DISABLED
[ ] ENABLED

Legacy Redirection Mode controls how the redirection works. If set to disabled, the console needs to open the redirection ports before each session. This is meant for enterprise consoles and new SMB consoles that support opening the redirection ports. The old SMB consoles (before Intel AMT 6.0) which do not support opening the redirection ports function need to manually turn on the redirection port through this Intel MEBx option.

When selecting the mode, the following message is displayed:

Option	Description
Disabled	Legacy redirection Mode is disabled.(Default)
	The port is left open at all times when redirection is enabled in the Intel MEBx. It is the

Enabled	same as what used to be SMB mode in previous projects. Old (before Intel AMT 6.0) SMB consoles will need this mode to succeed opening redirection sessions.

Previous Menu

Under the SOL/IDER page, select **Previous Menu** and press **Enter**.
The SOL/IDER page changes to the Intel AMT Configuration page.

KVM Configuration

Under the Intel AMT Configuration page, select **KVM Configuration** and press **Enter**.
The Intel AMT Configuration page changes to the KVM Configuration page.

KVM Feature Selection

Under the IKVM Configuration page, select **KVM Feature Selection** and press **Enter**.

```
Intel(R) Management Engine BIOS Extension v6.0.1.0003
Copyright(C) 2003-08 Intel Corporation.  All Rights Reserved.
[ KVM Configuration ]
KVM Feature Selection
User Opt-in
Opt-in Configurable from remote IT
Previous Menu

[ESC]=Exit          [↑↓]=Select          [ENTER]=Access

[ ] DISABLED
[*] ENABLED
```

Option	Description
Disabled	Disable KVM Feature
Enabled	Enable KVM Feature

 NOTE: Disabling KVM does not remove this feature but disables it. KVM will not work in this case.

User Opt-in

Under the IKVM Configuration page, select **User Opt-in** and press **Enter**.

The following options can be selected:
Local User Consent is not required for remote establishment of KVM session
Local User Consent is required for remote establishment of KVM session

Opt-in Configurable from remote IT

Under the IKVM Configuration page, select **Opt-in Configurable from remote IT** and press **Enter**.

Option	Description
Disable Remote Control of KVM Opt-in Policy	This option disables the Remote User's ability to select User OPT-IN Policy. In this case only the local user can control the opt-in policy.
Enable Remote Control of KVM Opt-in Policy	Enables Remote User's ability to select User OPT-IN Policy.

Previous Menu

Under the KVM Configuration page, select **Previous Menu** and press **Enter**.
The KVM Configuration page changes to the Intel AMT Configuration page.

Previous Menu

Under the Intel AMT Configuration page, select **Previous Menu** and press **Enter**.
The Intel AMT Configuration page changes to Main Menu page.

* Information on this page provided by Intel.

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Intel® Fast Call

Intel® Fast Call for help is a feature that is available for VPro SKUs. An Intel Fast Call for help connection allows the end user to request assistance if the VPro system is outside the corporate network. If the BIOS allows an Intel Fast Call for help connection, the user can press the hot key/button (<Ctrl><h>) while the system is loading to initiate an Intel Fast Call connection. It is recommended to press F12 and select Fast Call for Help.

 NOTE: This feature will only be available when the IT administrator has configured the system to support it.

Requirements

Before an Intel Fast Call connection can be established from the Operating System, the VPro system must have:

1. Environment detection enabled
2. Remote Connection policy
3. Management Presence Server (MPS)

Putting it all Together

In order to get the Intel Fast Call for help, the system needs to be in provisioned state. If the system supports Full VPro, Intel Fast Call for help will be available for use. If the system only supports Intel Standard Manageability, Intel Fast call for help is not enabled.

1. Before an Intel Fast Call for help can be started, environment detection must be enabled. This allows Intel AMT to determine if the system is within the corporate network. This is configured through an ISV app.
2. A remote connection policy must be created before an Intel Fast call for help can be initiated. The policy for the BIOS-initiated call does not need to be configured, but another policy must exist before initiating a help call from the BIOS. The BIOS must support the hot key that initiates the Intel Fast call for help.
3. A management presence server must exist to answer the Intel fast calls for help. The management presence server resides in the DMZ zone.

When all of these conditions are satisfied, the system is able to initiate an Intel Fast Call for help.

Initiating Intel Fast Call for Help

Once the feature has been fully configured, there are three methods for initiating an Intel Fast Call for help session. These include:

- At the Dell splash screen press <Ctrl><h>.
- At the Dell splash screen press <F12> for the One Time Boot Menu.
  - Select the last option titled **Intel Fast Call for Help**.
- From Windows:
  1. Launch the Intel AMT privacy icon/application **Intel Management Security Status**.
  2. Switch to the **Intel AMT** tab.
  3. In the **Remote Connectivity** box, click **Connect**.

* Information on this page provided by Intel.

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ME General Settings

The following table lists the default settings for the Intel® Management Engine BIOS Extension (MEBx) on general settings page.

Password

Password	admin

Change Intel ME Password

Change Intel ME Password	blank

Password Policy

Password Policy	Default Password Only * During Setup and Configuration Anytime

Network Setup

Network Name Settings	
Host Name	blank
Domain Name	blank
FQDN	Dedicated Shared *
Dynamic DNS	Disabled * Enabled
TCP/IP Settings	
Wired LAN IPv4 Configuration	
DHCP Mode	Disabled Enabled *
Wired LAN IPv6 Configuration	
IPv6 Feature Selection	Disabled * Enabled *The configuration page is displayed only if* ***enabled*** *is selected.*
IPv6 Interface ID Type	Random ID * Intel ID Manual ID
IPv6 Address	blank
IPv6 Default Router	blank
Preferred DNS IPv6 Addrress	blank
Alternate DNS IPv6 Address	blank

Activate Network Access	Y / N

Unconfigure Network Access	Y / N

Remote Setup and Configuration

Current Provisioning Mode	
Provisioning Record	
RCFG	
Start Configuration	Y / N
Provisioning Server IPv4/IPv6	blank
Provisioning Server FQDN	blank
TLS PSK	
Set PID and PPS	blank
Delete PID and PPS	Y / N
TLS PKI	
Remote Configuration	Disabled Enabled *
PKI DNS Suffix	blank
Manage Hashes	

FW Update Settings

FW Update Settings	
Local FW Update Qualifier	Always Open * Never Open Restricted
Secure FW Update	Disabled Enabled *

*Default setting
**May cause Intel AMT partial unprovision
[1] Intel ME Platform State Control is only changed for Management Engine (ME) troubleshooting.
[2] Un-provision setting only seen if the box is provisioned.

AMT Configuration

The following table lists the default settings for the Intel® Management Engine BIOS Extension (MEBx) on AMT configuration page.

Manageability / Feature Selection

SOL / IDER	
Username and Password	Disabled Enabled *
SOL	Disabled Enabled *
IDER	Disabled Enabled *
Legacy Redirection Mode	Disabled Enabled *
KVM Configuration	
KVM feature Selection	Disabled Enabled *
User Opt-in	User Consent is not required for KVM session User Consent is required for KVM session *
Opt-in Configurable from remote IT	Disable Remote Control of KVM Opt-In Policy Enable Remote Control of KVM Opt-In Policy *

 NOTE: In order for KVM to work, the requirement must be Clarkdale/Arrandale CPU

*Default setting
**May cause Intel AMT partial unprovision
[1] Intel ME Platform State Control is only changed for Management Engine (ME) troubleshooting.
[2] In Enterprise mode, DHCP automatically loads the domain name.
[3] Un-provision setting only seen if the box is provisioned.

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Setup and Configuration Methods Overview

As discussed in the **Setup and Configuration Overview** section, the computer has to be configured before the Intel AMT capabilities are ready to interact with management application. There are two methods to complete the provisioning process (in order from least complex to most complex):

- **Configuration service** — A configuration service allows you to complete the provisioning process from a GUI console on their server with only one touch on each of the Intel AMT-capable computers. The PPS and PID fields are completed using a file created by the configuration service saved to a USB mass storage device.
- **MEBx interface** — The IT administrator manually configures the Management Engine BIOS Extension (MEBx) settings on each Intel AMT-ready computer. The PPS and PID fields are completed by typing the 32 character and 8 character alphanumeric keys created by the configuration service into the MEBx interface.
- **TLS-PKI**— Commonly referred to as Remote Configuration (RCFG) or Zero Touch Configuration (ZTC). This process utilizes a certificate associated with the ProvisionServer. The associated certificate hash must be listed within the Intel Management Engine BIOS Extension (MEBx).

Details on using these various methods are available in the next few sections.

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Configuration Service--Using a USB Device

This section discusses Intel® AMT setup and configuration using a USB storage device. You can set up and locally configure password, provisioning ID (PID), and provisioning passphrase (PPS) information with a USB drive key. This is also called USB provisioning. USB provisioning allows you to manually set up and configure computers without the problems associated with manually typing in entries.

 NOTE: USB provisioning only works if the MEBx password is set to the factory default of `admin`. If the password has been changed, reset it to the factory default by clearing the CMOS.

The following is a typical USB drive key setup and configuration procedure. For a detailed walk-through using Altiris® Dell™ Client Manager (DCM), refer to the USB device procedure page.

1. An IT technician inserts a USB drive key into a computer with a management console.
2. The technician requests local setup and configuration records from a setup and configuration server (SCS) through the console.
3. The SCS does the following:
   1. Generates the appropriate passwords, PID, and PPS sets.
   2. Stores this information in its database.
   3. Returns the information to the management console.
4. The management console writes the password, PID, and PPS sets to a **setup.bin** file in the USB drive key.
5. The technician takes the USB drive key to the staging area where new Intel AMT-capable computers are located. The technician then does the following:
   1. Unpacks and connects computers, if necessary.
   2. Inserts the USB drive key into a computer.
   3. Turns on that computer.
6. The computer BIOS detects the USB drive key.
   - If found, the BIOS looks for a **setup.bin** file at the beginning of the drive key. Go to step 7.
   - If no USB drive key or **setup.bin** file is found, then restart the computer. Ignore the remaining steps.
7. The computer BIOS displays a message that automatic setup and configuration will occur.
   1. The first available record in the **setup.bin** file is read into memory. The process accomplishes the following:
      - Validates the file header record.
      - Locates the next available record.
      - If the procedure is successful, the current record is invalidated so it cannot be used again.
   2. The process places the memory address into the MEBx parameter block.
   3. The process calls MEBx.
8. MEBx processes the record.
9. MEBx writes a completion message to the display.
10. The IT technician turns off the computer. The computer is now in the setup state and is ready to be distributed to users in an Enterprise-mode environment.
11. Repeat step 5 if you have more than one computer.

Refer to the management console supplier for more information on USB drive key setup and configuration.

USB Drive Key Requirements

The USB drive key must meet the following requirements to be able to set up and configure Intel AMT:

- It must be greater than 16 MB.
- It must be formatted with the FAT16 or FAT32 file system.
- The sector size must be 1 KB.
- The USB drive key is not bootable.
- The USB drive key is for AMT provisioning and not for any other purpose.
- The USB key must not contain any other files whether hidden, deleted, or otherwise.
- The **setup.bin** file must be the first file landed on the USB drive key **(for legacy BIOS or Dell™ OptiPlex™ 980**).
- The **setup.bin** file must be in the top directory **(for UEFI BIOS or Dell™ Latitude™ E6410 / E6410 ATG / E6510 or Dell Precision™ Mobile Workstation M4500).**

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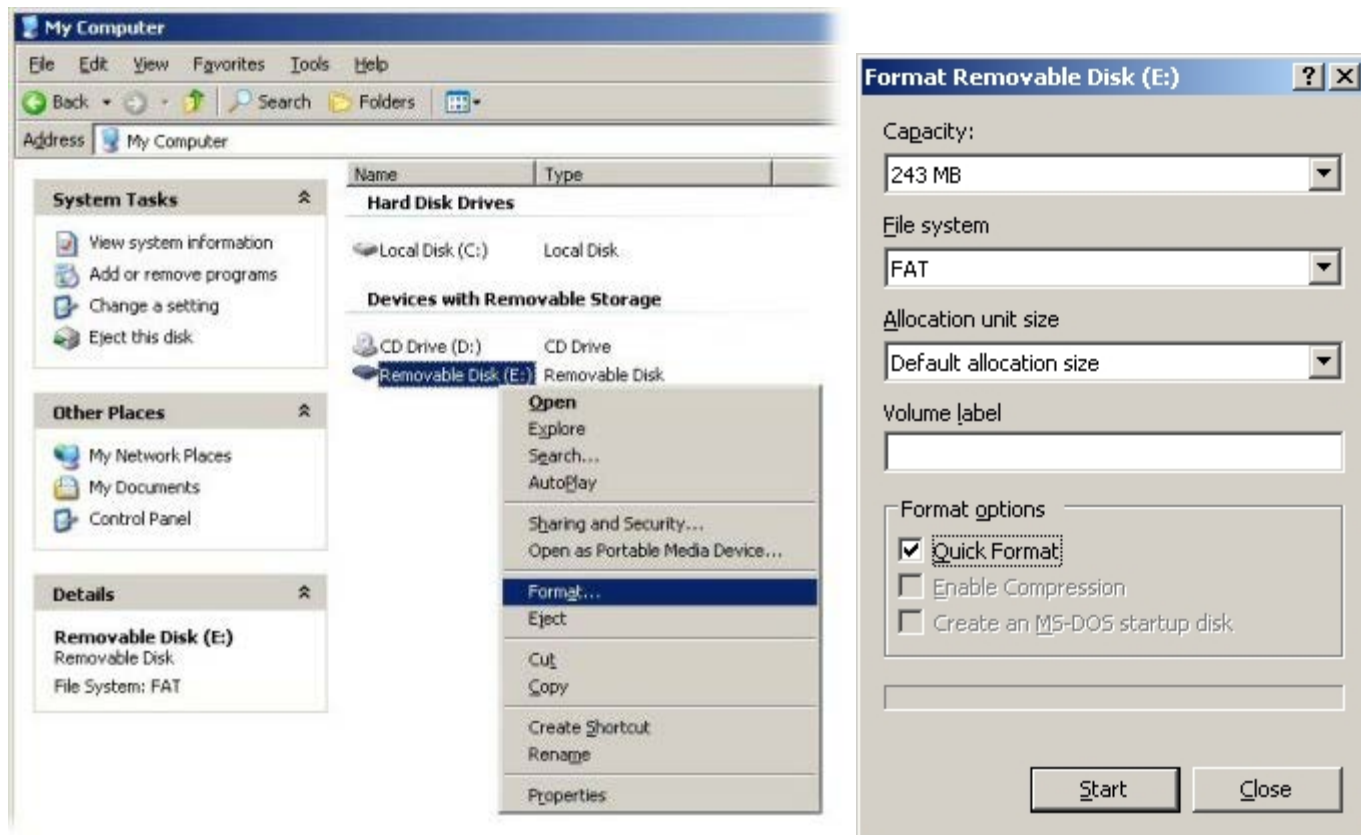
USB Device Procedure

The default console package provided is the Dell™ Client Management (DCM) application. This section provides the procedure to set up and configure Intel® AMT with the DCM package. As mentioned earlier in the document, several other packages are available through third-party vendors.

The computer must be configured and seen by the DNS server before you begin this process. Also, a USB storage device is required and must conform to the requirements listed in Configuration Service--Using a USB Device.

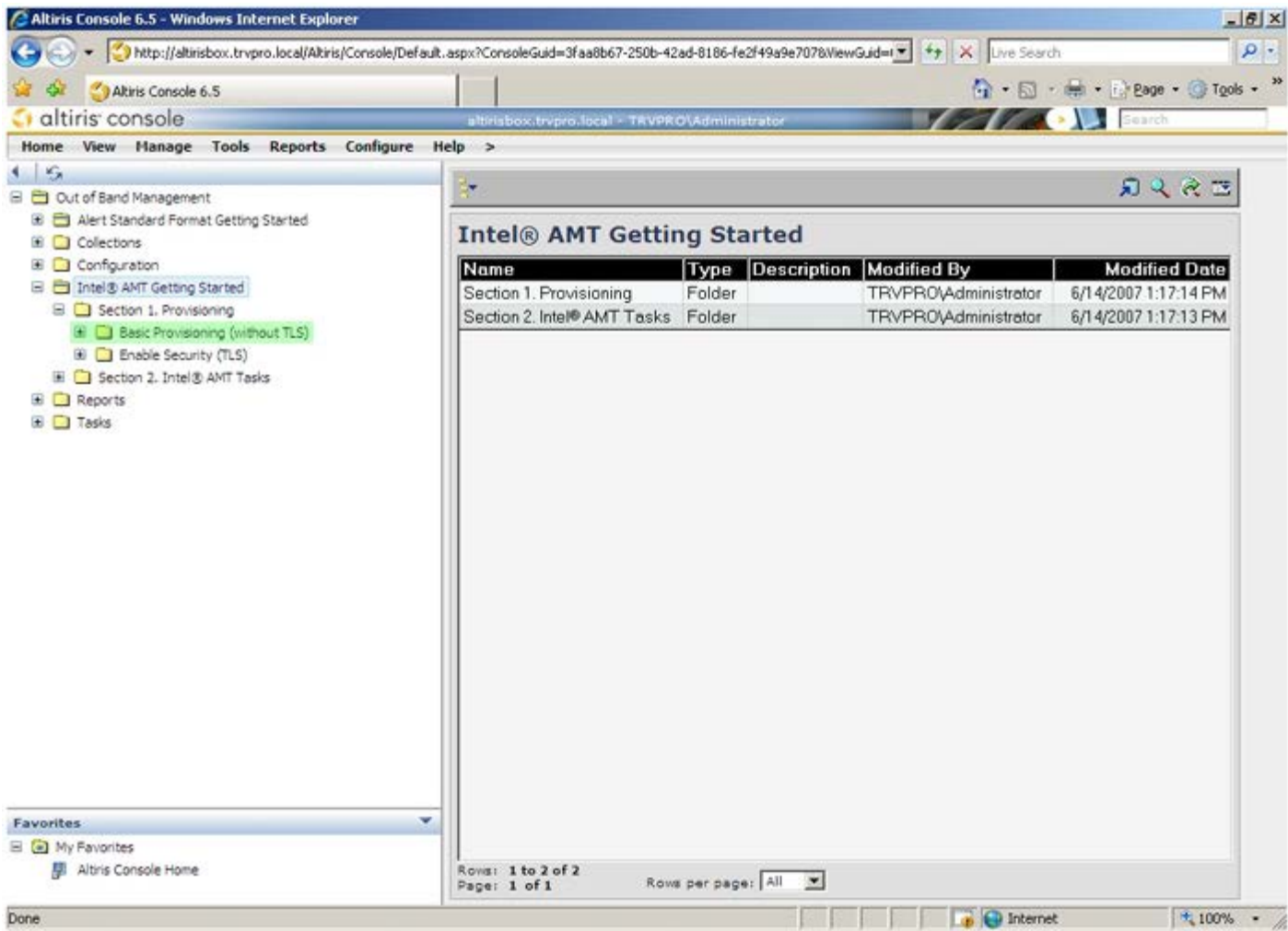
NOTE: The nature of management software is that it is not always dynamic or real time. In fact, sometimes if you tell a computer to do something, such as to reboot, you may just have to do it again before it will work.

1. Format a USB device with the FAT16 file system and no volume label and then set it aside.

2. Open the Altiris® Dell Client Manager application by double clicking the desktop icon or through the Start menu.

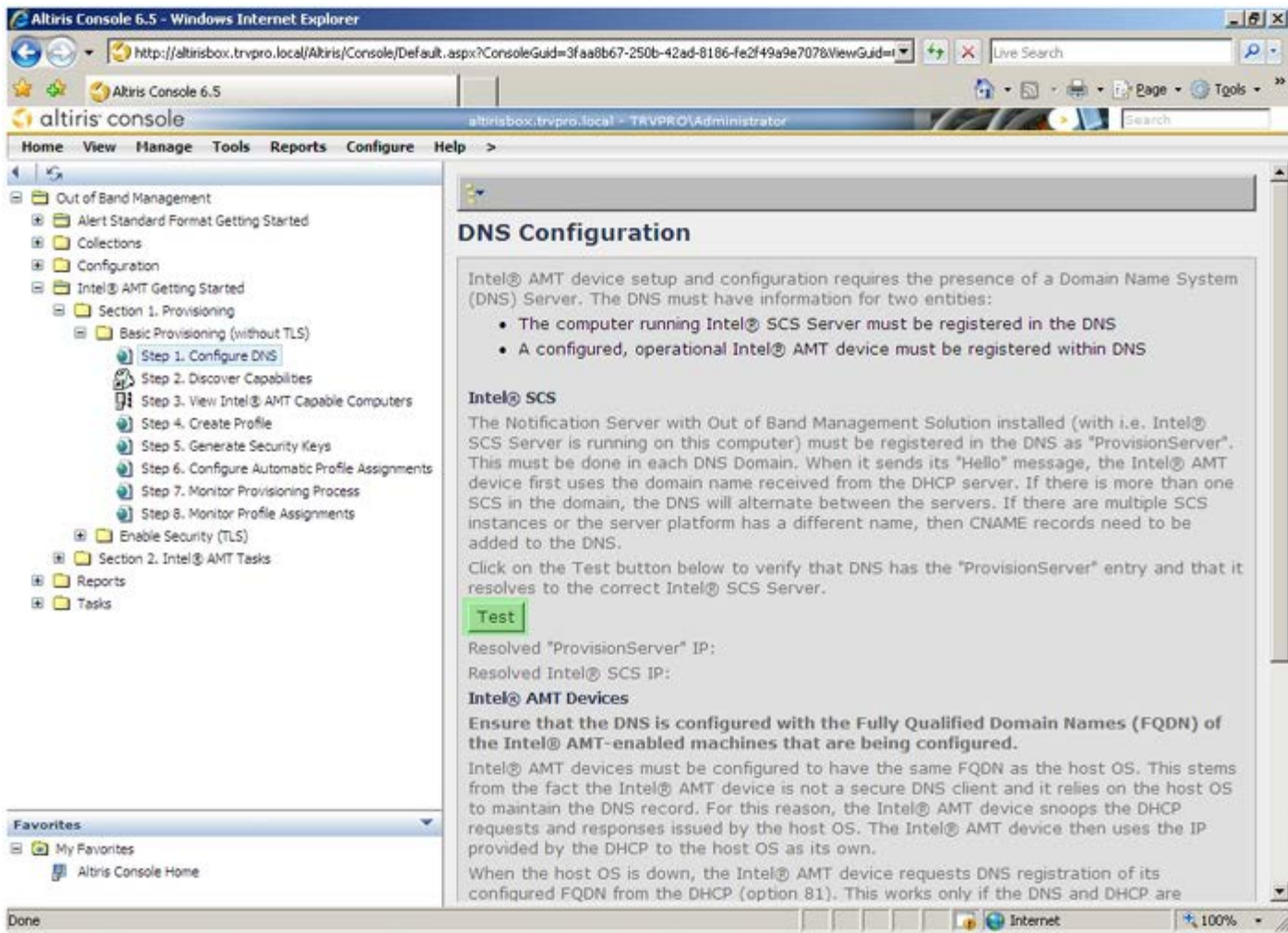
3. Select **AMT Quick Start** from the left navigation menu to open the Altiris Console.

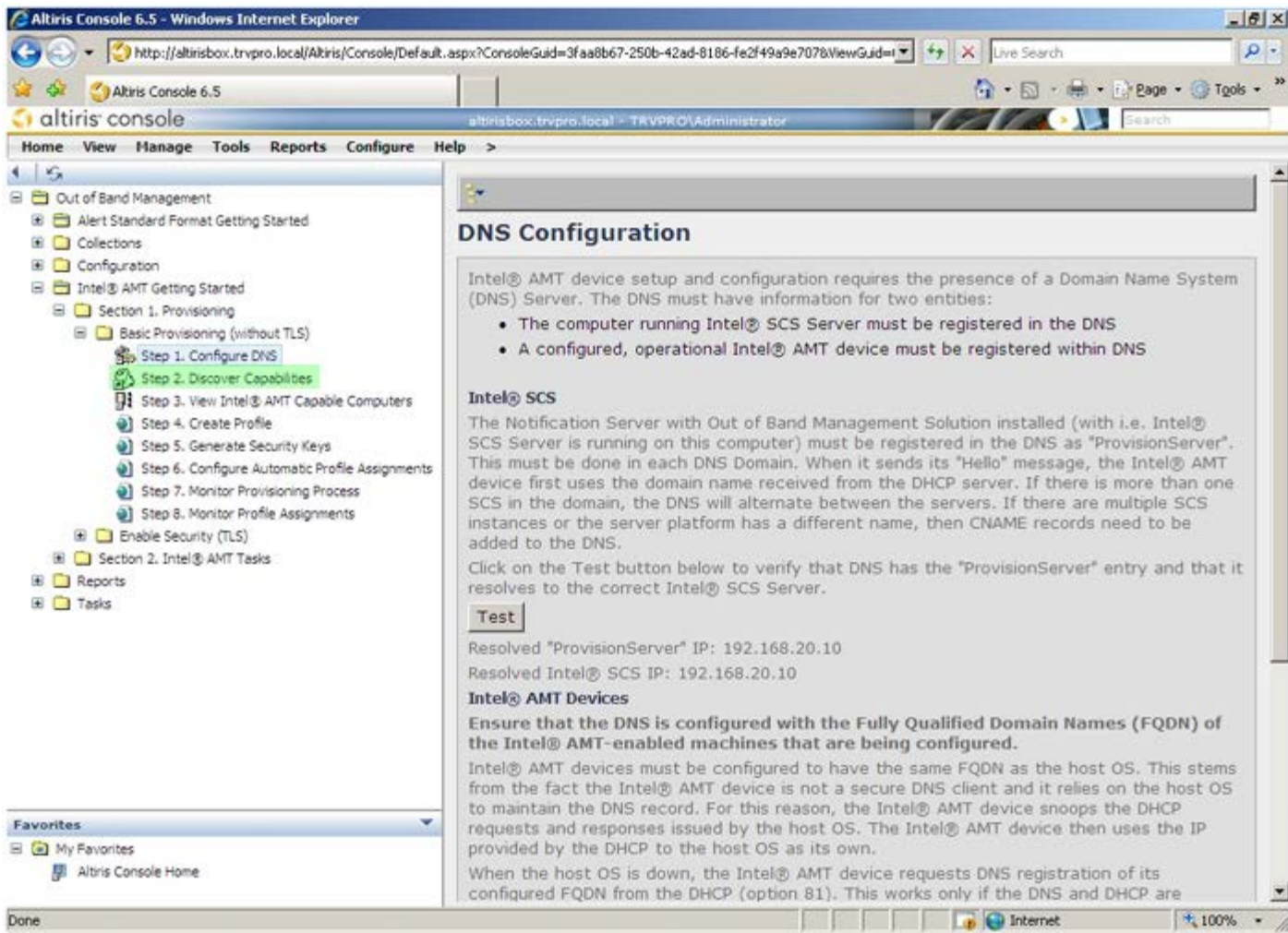
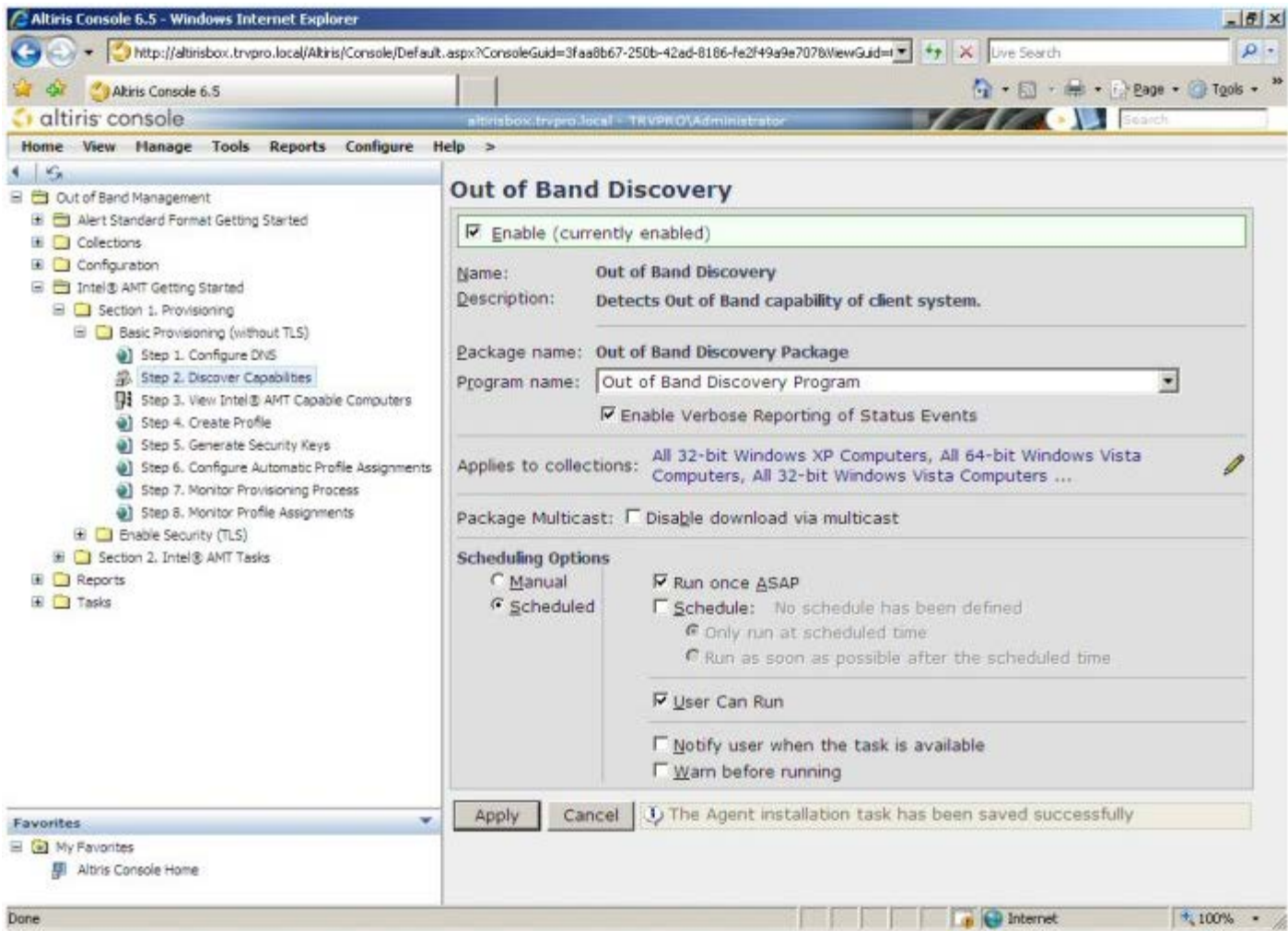
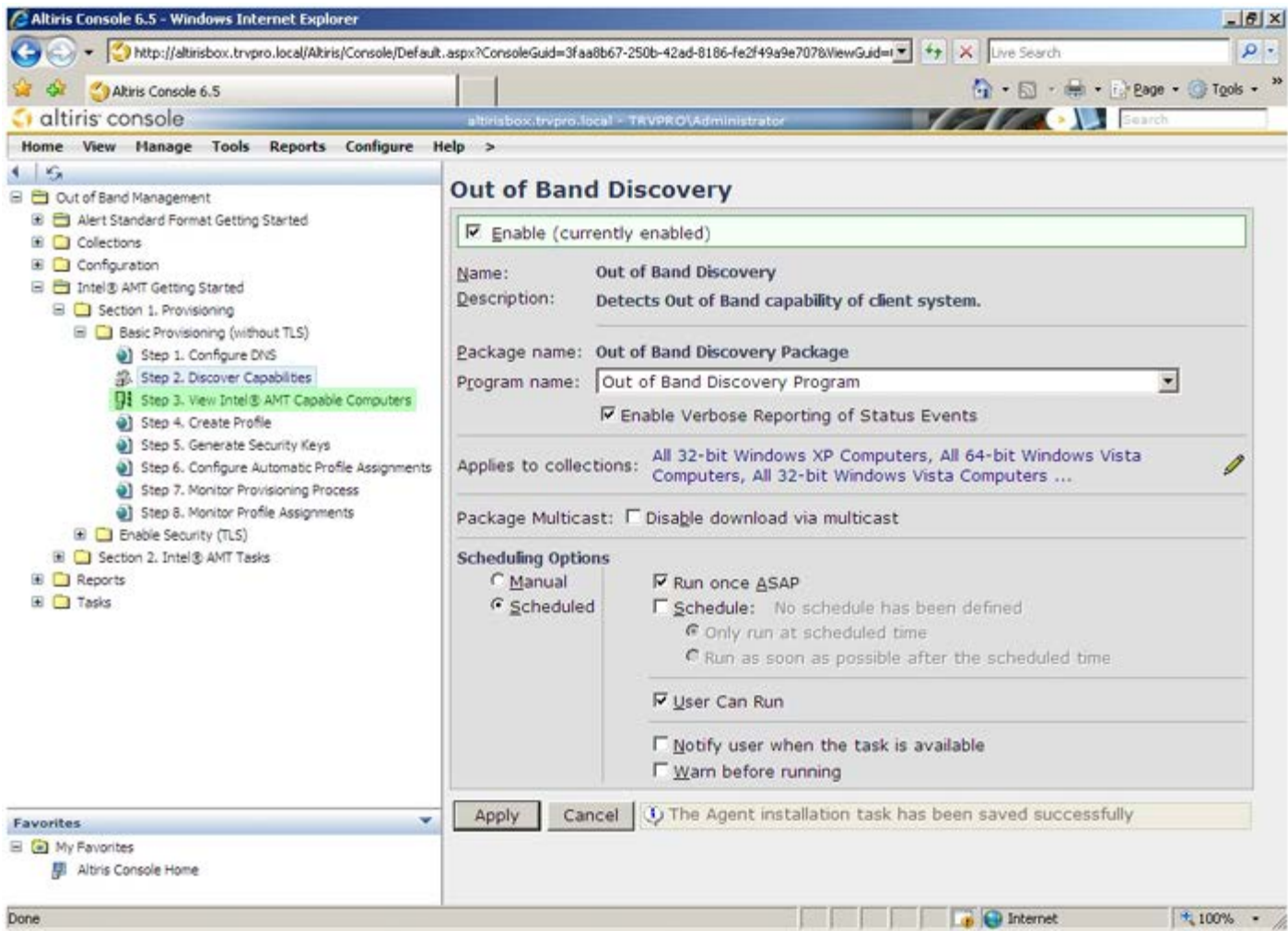
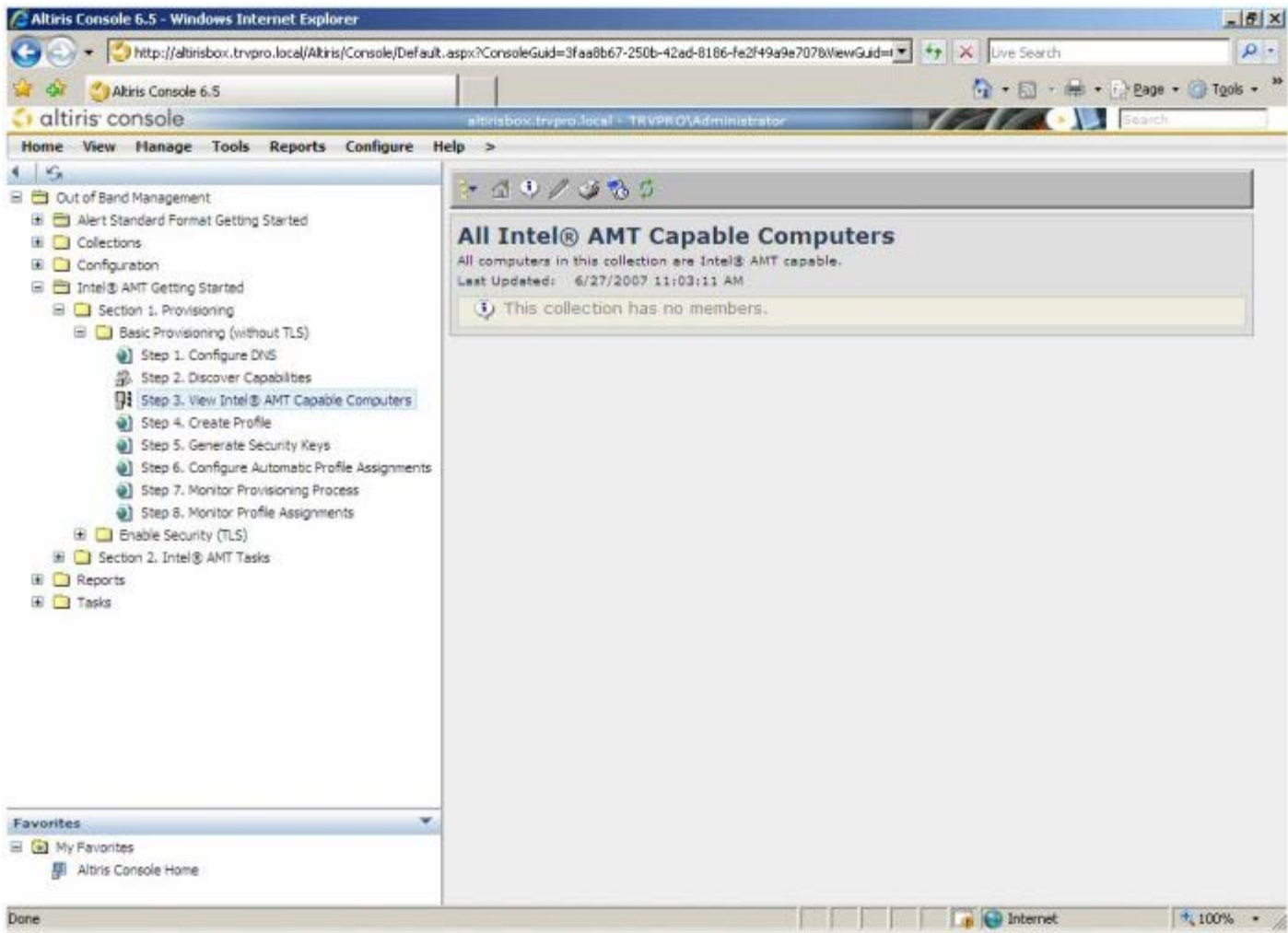
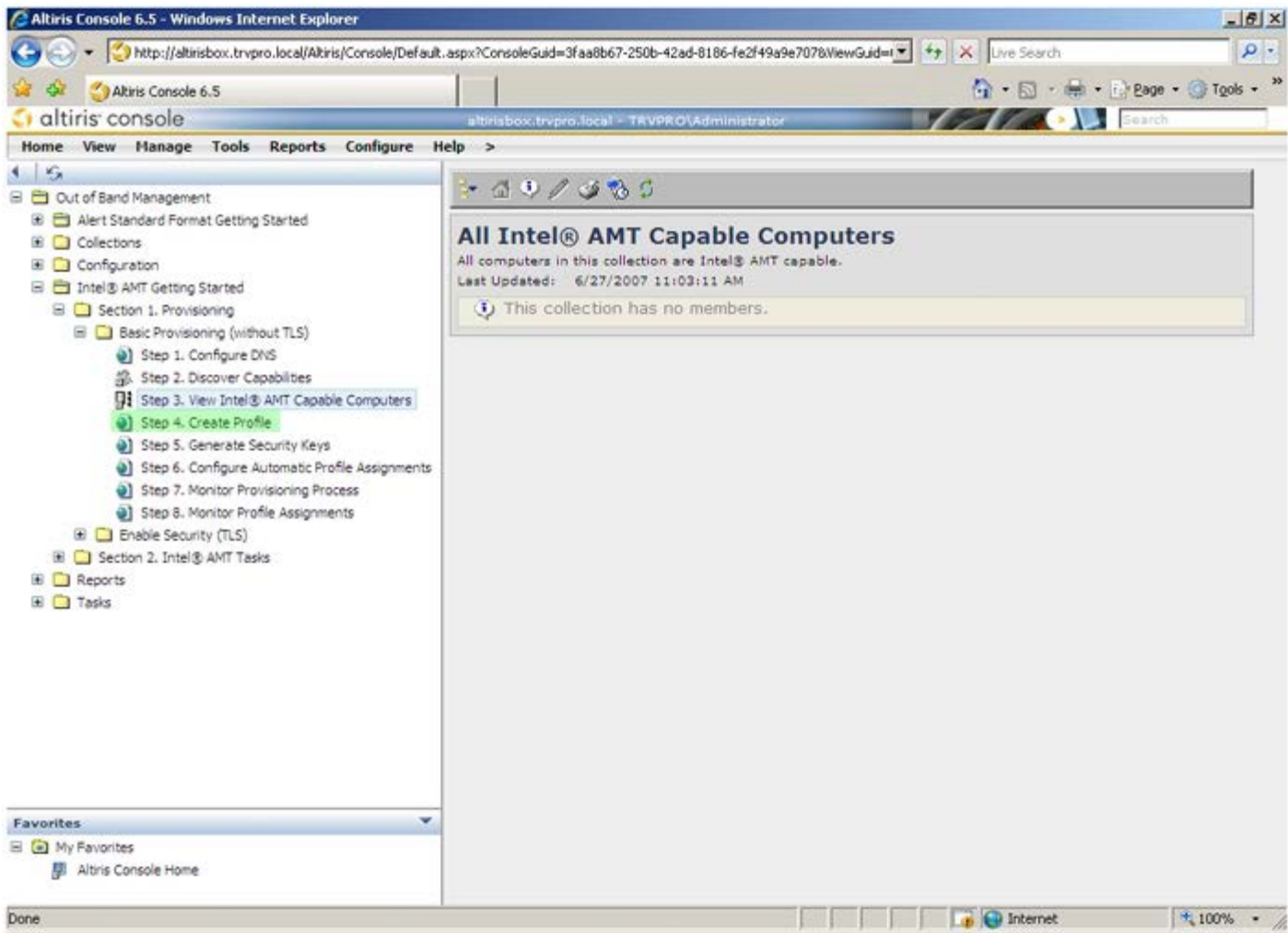
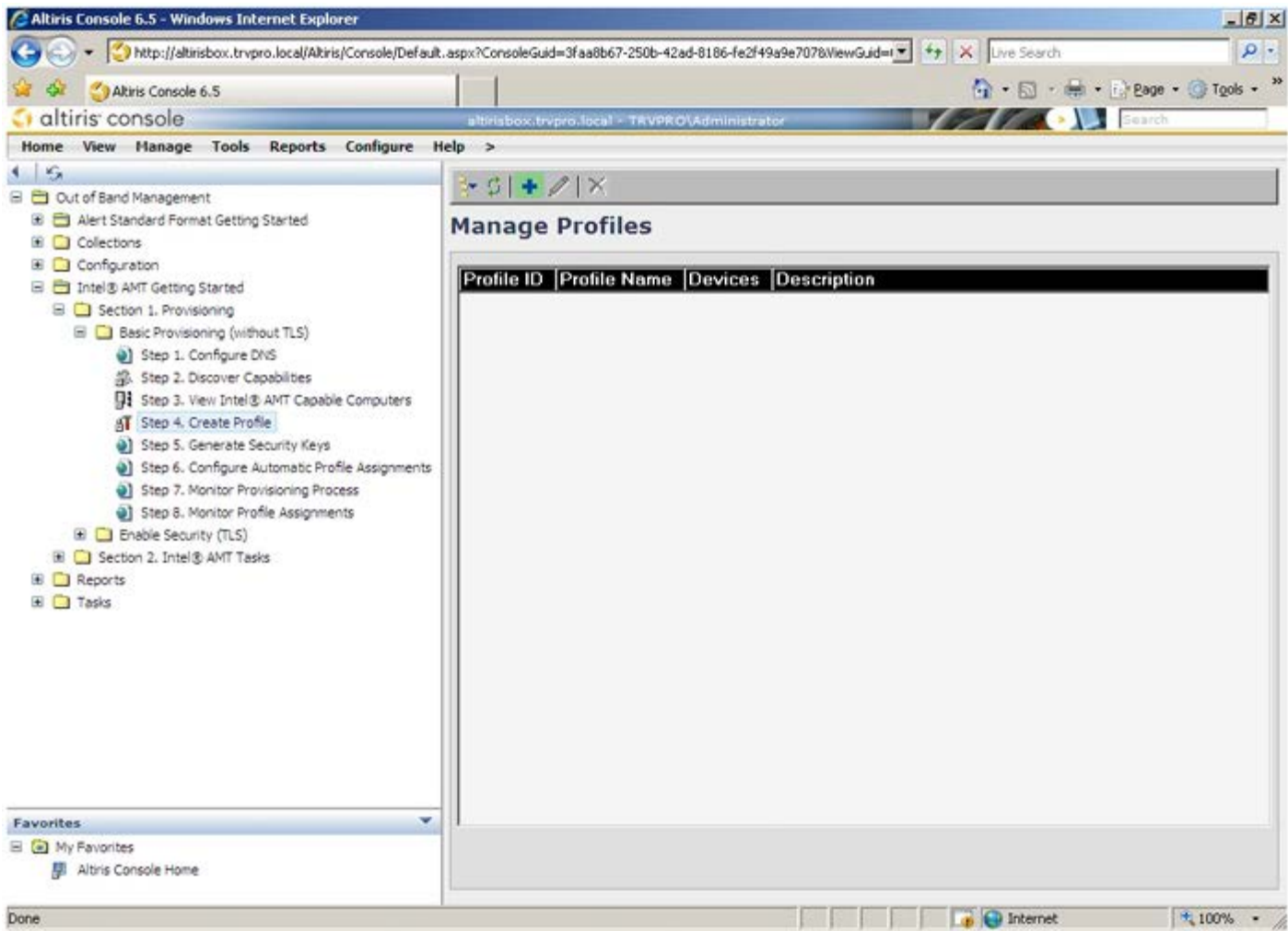
4. Click the <+> to expand the **Intel AMT Getting Started** section.

5. Click the <+> to expand the **Section 1. Provisioning** section.

6. Click the <+> to expand the **Basic Provisioning (without TLS)** section.

7. Select **Step 1. Configure DNS**.

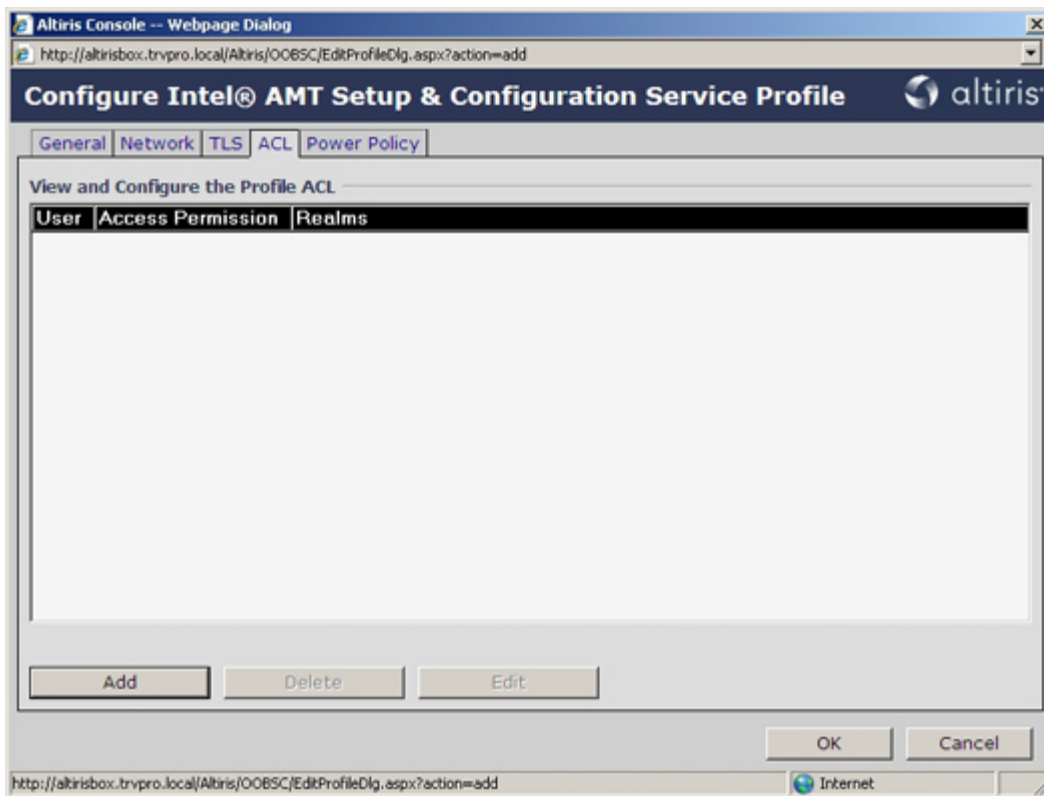
   The notification server with an out-of-band management solution installed must be registered in DNS as "ProvisionServer."

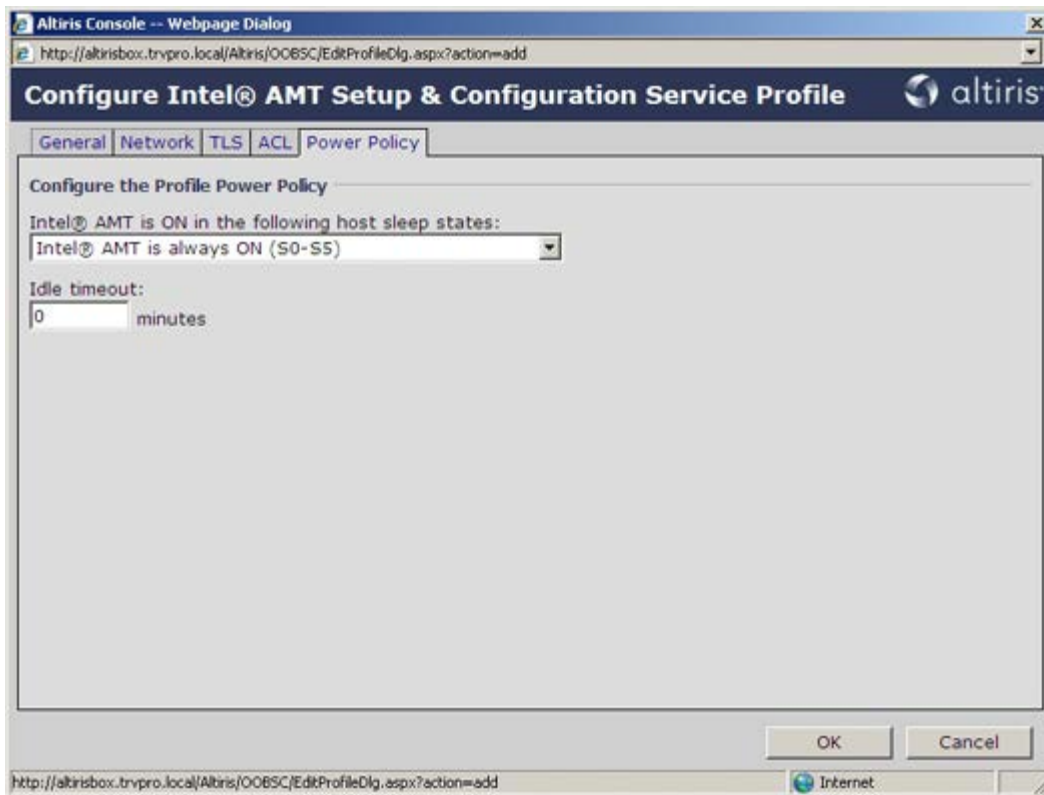
8. Click **Test** on the **DNS Configuration** screen to verify that DNS has the ProvisionServer entry and that it resolves to the correct Intel setup and configuration server (SCS).

The IP address for the ProvisionServer and Intel SCS are now visible.

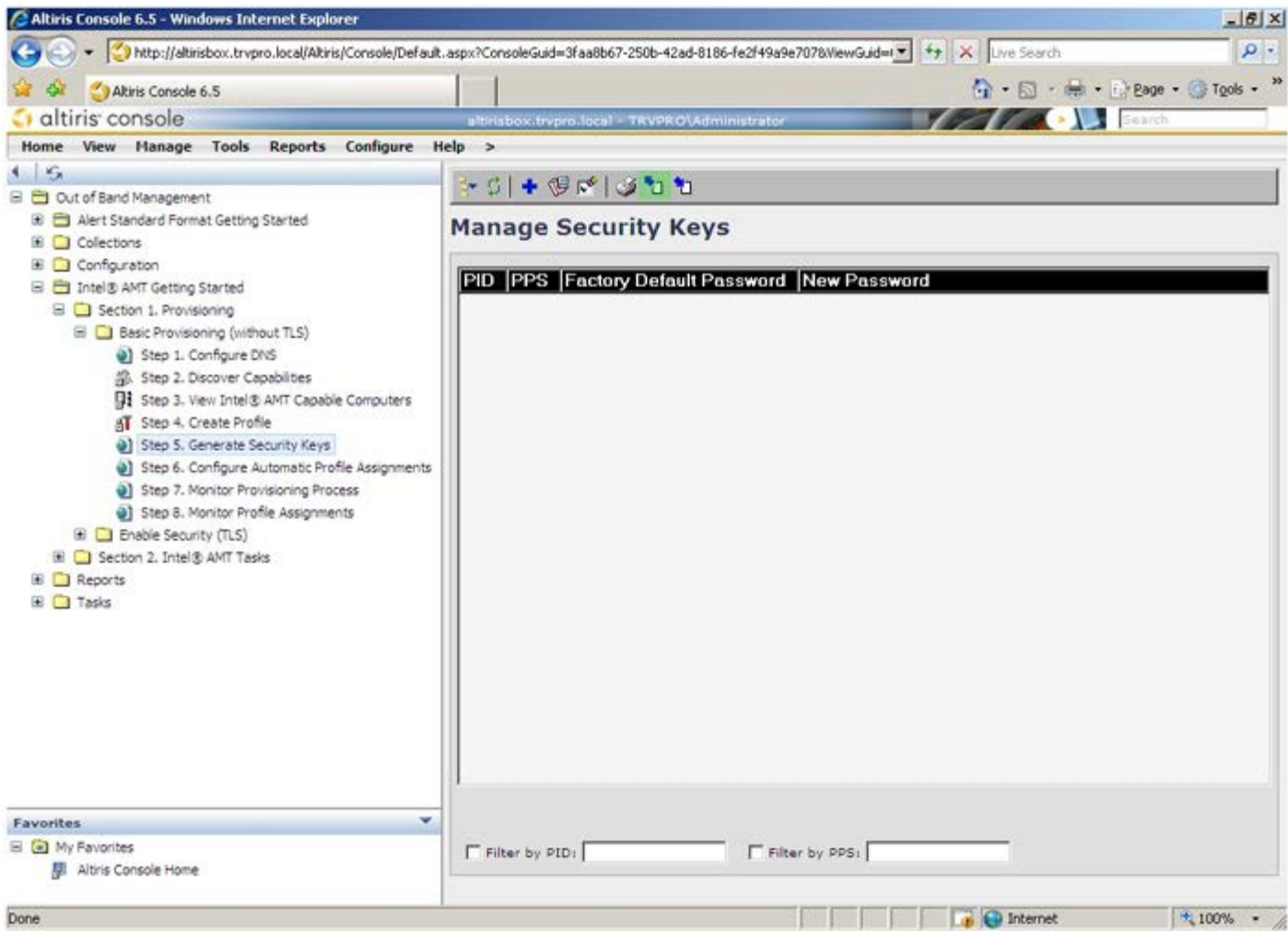
9. Select **Step 2. Discovery Capabilities**.

10. Verify that the setting is **Enabled**. If **Disabled**, click the checkbox next to **Disabled** and click **Apply**.

11. Select **Step 3. View Intel AMT Capable Computers**.

Any Intel AMT-capable computers on the network are visible in this list.

12. Select **Step 4. Create Profile**.

13. Click the '**+**'' symbol to add a new profile.

On the **General** tab, the administrator can modify the profile name and description along with the password. The administrator sets a standard password for easy maintenance in the future. Select the **manual** radio button and type a new password.

The **Network** tab provides the option to enable ping responses, VLAN, WebUI, Serial over LAN, and IDE Redirection. If you are configuring Intel AMT manually, all these settings are also available in the MEBx.

The **TLS** (Transport Layer Security) tab provides the ability to enable TLS. If enabled, several other pieces of information are required including the certificate authority (CA) server name, CA common name, CA type, and certificate template.

The **ACL** (access control list) tab is used to review users already associated with this profile and to add new users and define their access privileges.

The **Power Policy** tab has configuration options to select the sleep states for Intel AMT as well as an **Idle Timeout** setting. It is recommended that Idle timeout is always set to 0 for optimal performance.

CAUTION: The setting for the Power Policy tab can potentially impact a computer's ability to remain E-Star 4.0 compliant.

14. Select **Step 5. Generate Security Keys**.

15. Select the icon with the arrow pointing out to **Export Security Keys to USB Key**.

16. Select the **Generate keys before export** radio button.

17. Type the number of keys to generate (depends on the number of computers that need to be provisioned). The default is 50.

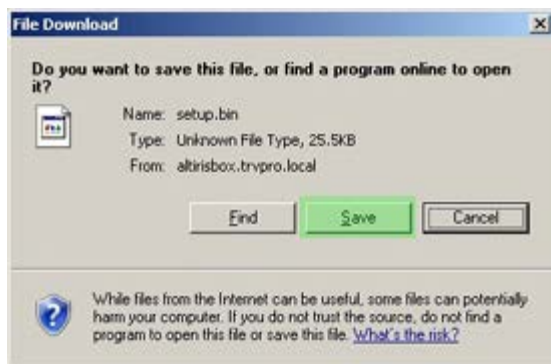
18. The Intel ME default password is **admin**. Configure the new Intel ME password for the environment.

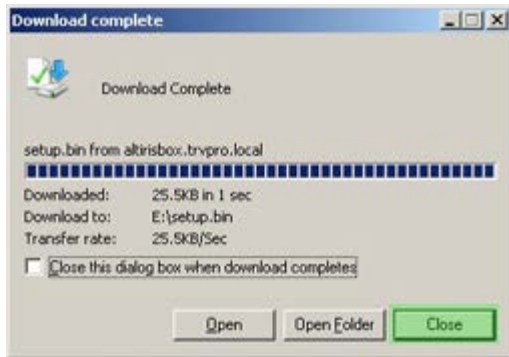
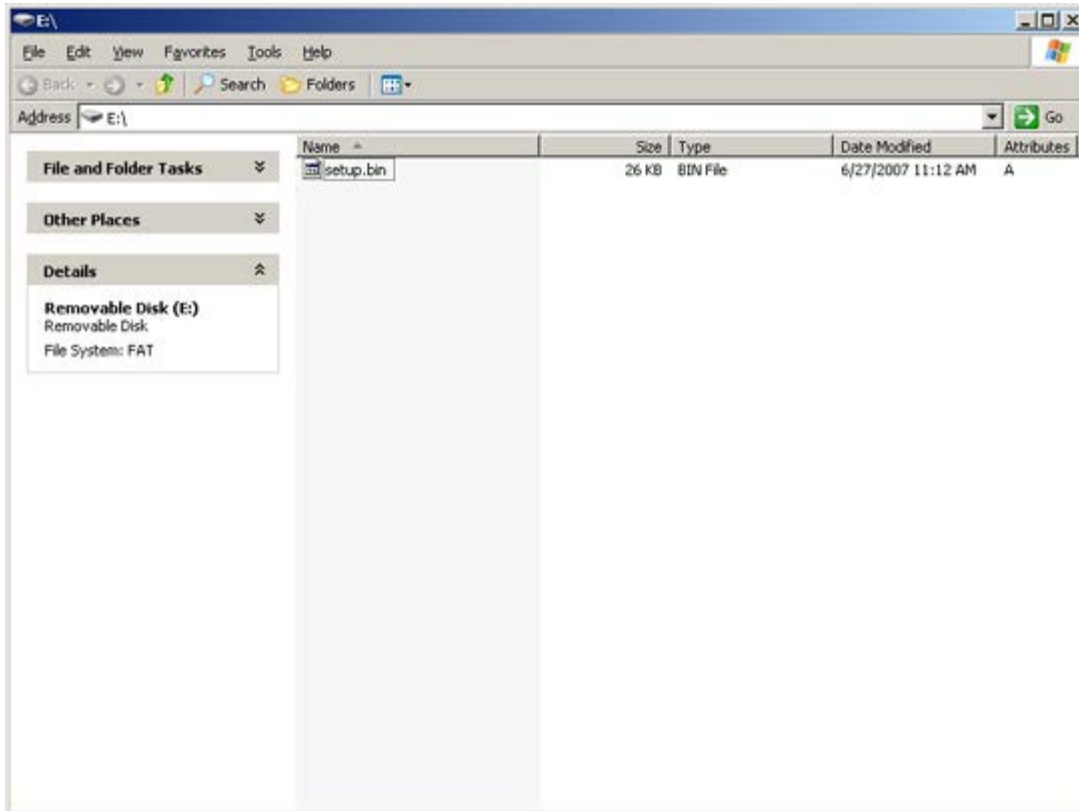
19. Click **Generate**. Once the keys have been created, a link appears to the left of the **Generate** button.

20. Insert the previously formatted USB device into a USB connector on the Provisioning Server.

21. Click the **Download USB key file** link to download **setup.bin** file to the USB device. The USB device is recognized by default; save the file to the USB device.

NOTE: If additional keys are needed in the future, the USB device must be reformatted before saving the **setup.bin** file to it.

a. Click **Save** in the **File Download** dialog box.

b. Verify the **Save in:** location is directed to the USB device. Click **Save**.

c. Click **Close** in the **Download complete** dialog box.

The **setup.bin** file is now visible in the drive Explorer window.

22. Close the **Export Security Keys to USB Key** and drive Explorer windows to return to the Altiris Console.

23. Take the USB device to the computer, insert the device, and turn on the computer. The USB device is recognized immediately and you are prompted to

    `Continue with Auto Provisioning (Y/N)`

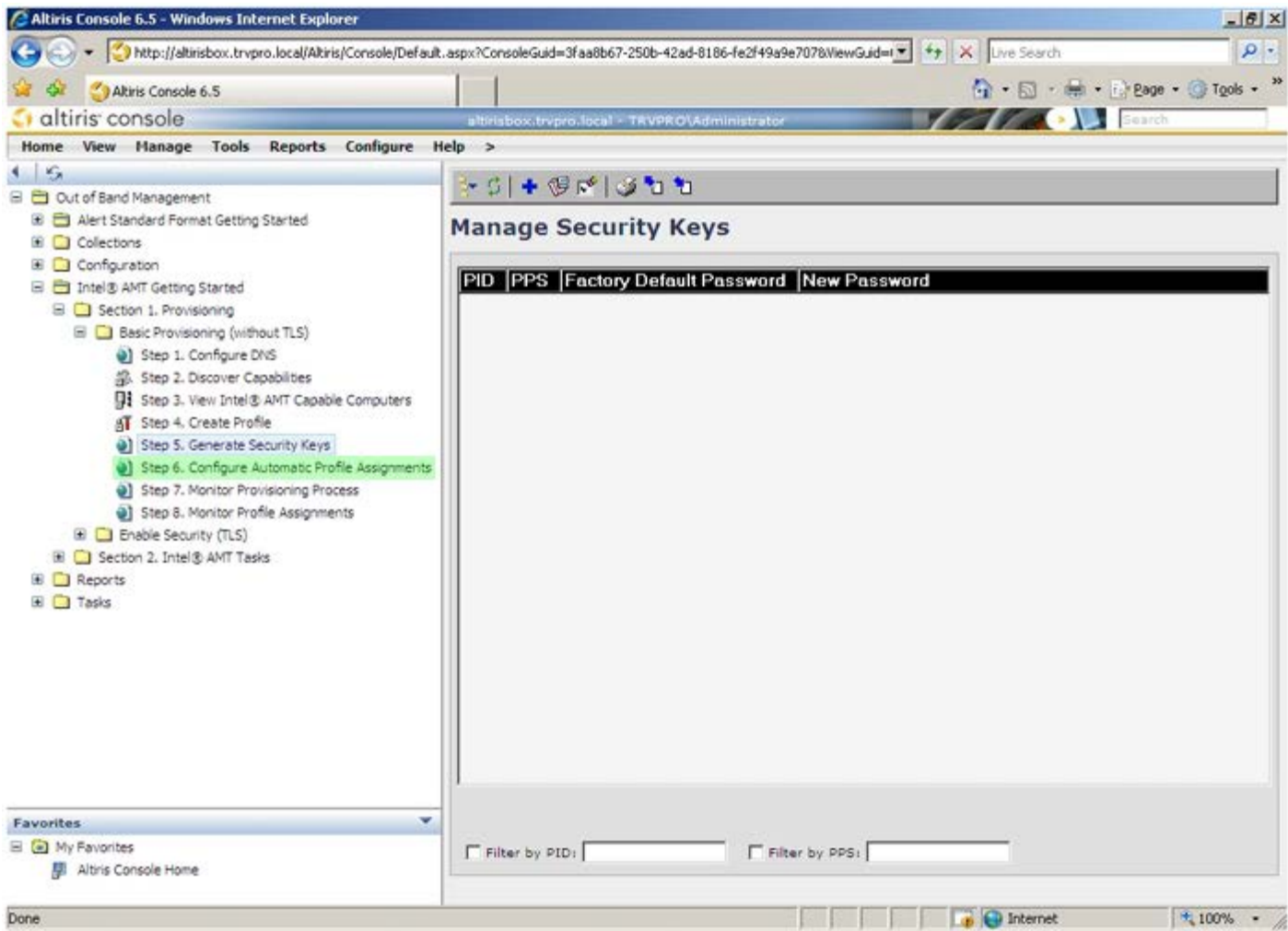
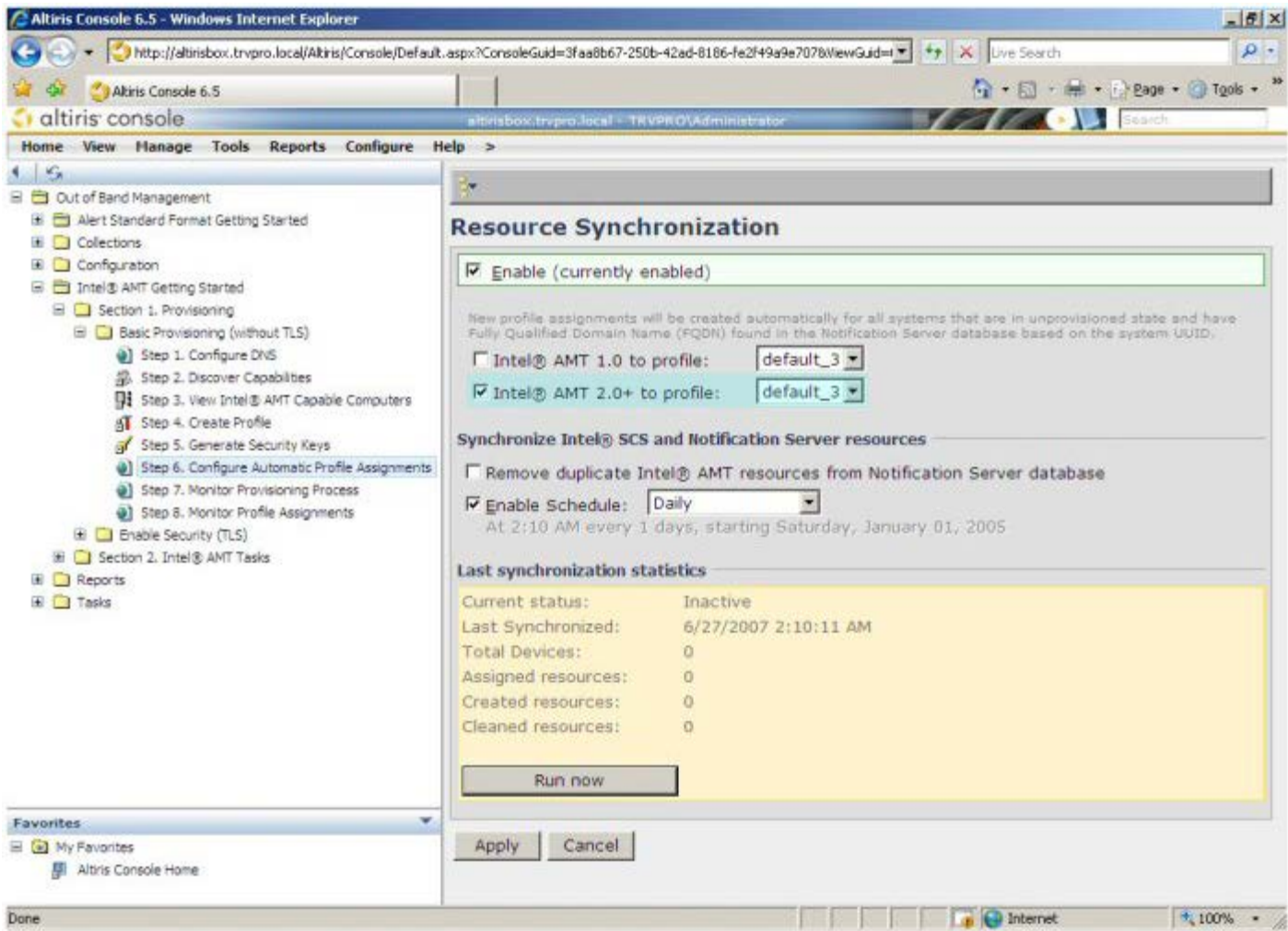
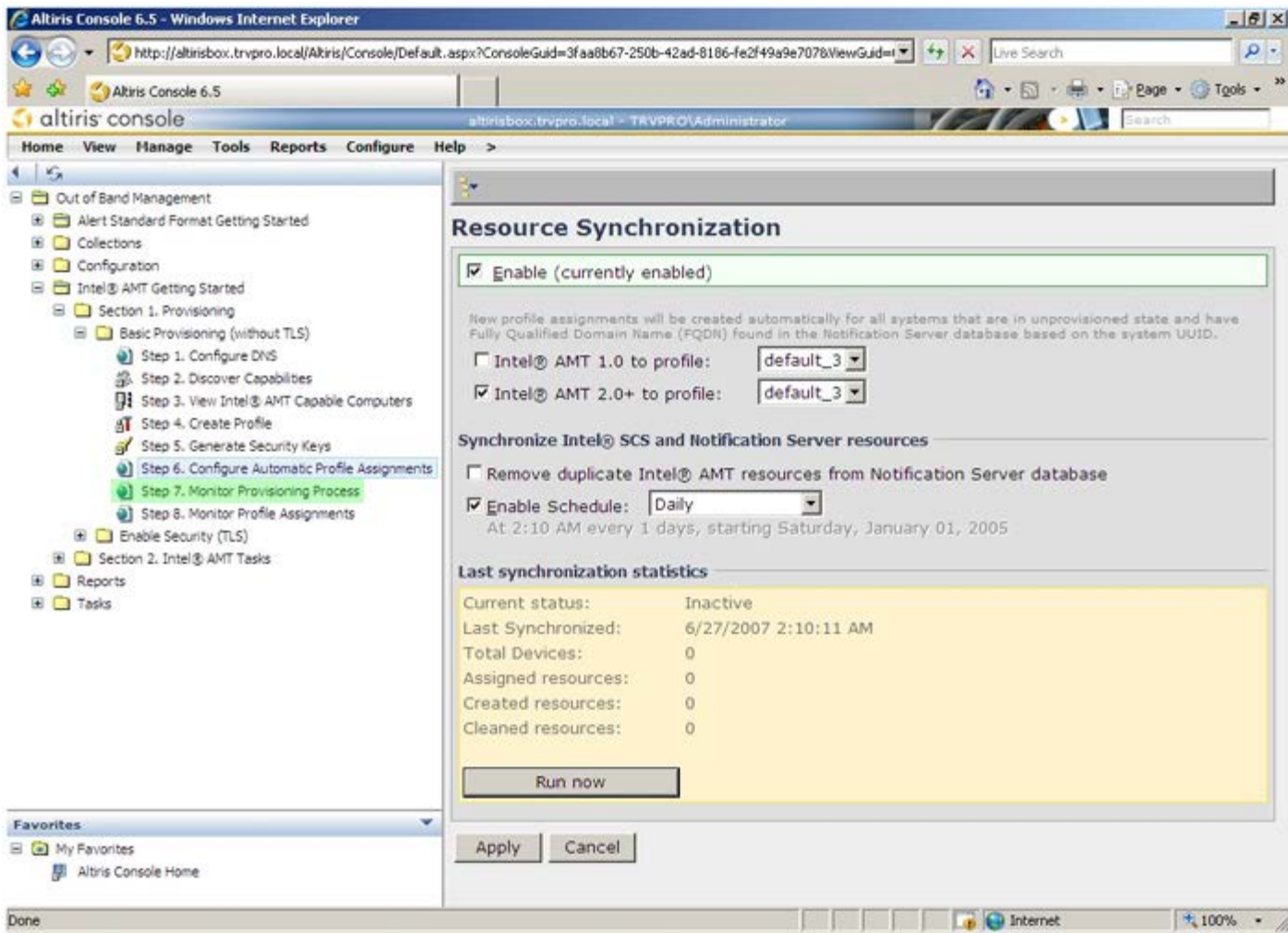
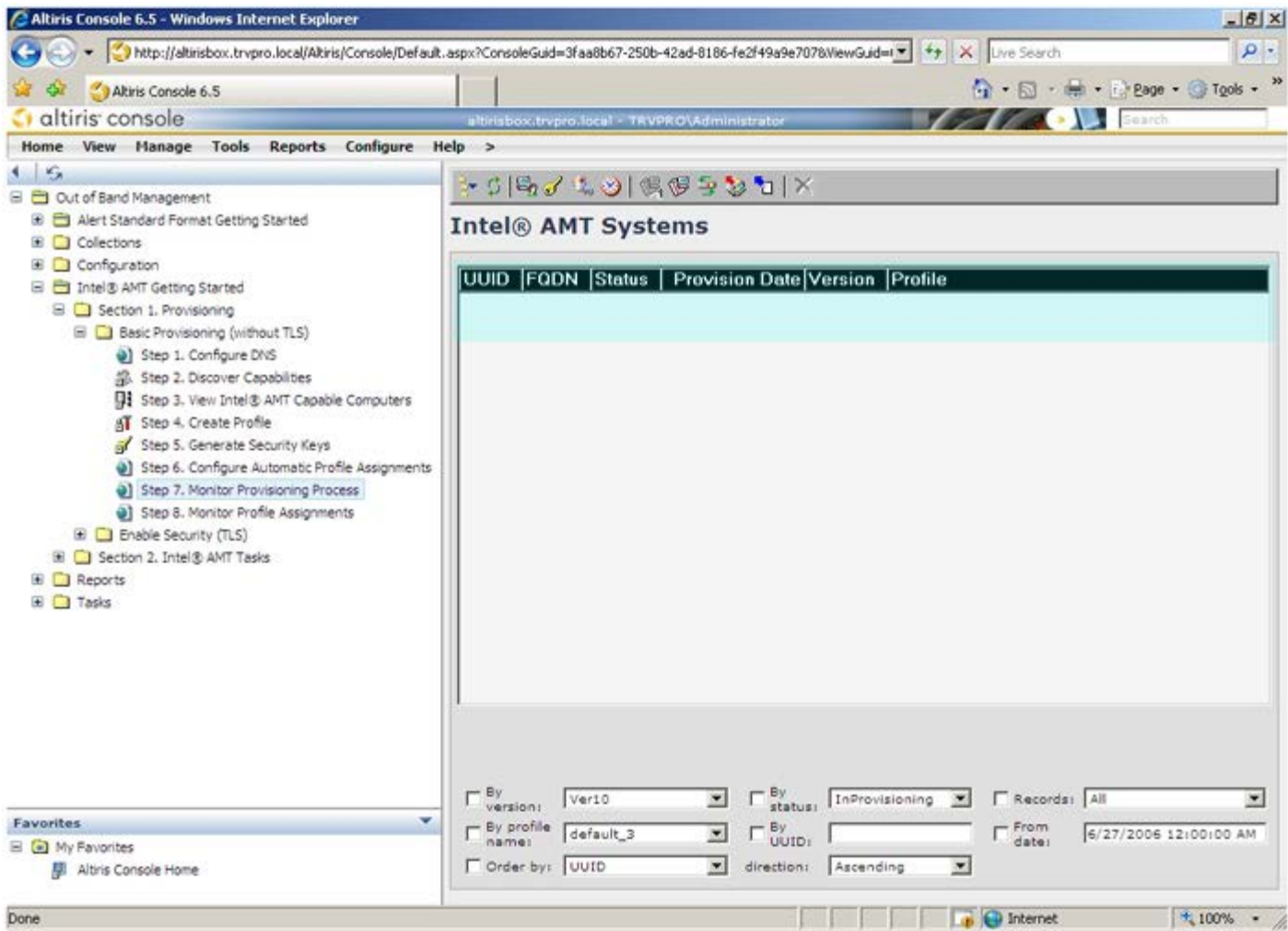
    Press <y>.

```
Intel(R) Management Engine BIOS Extension
Copyright(C) 2003-07 Intel Corporation.  All Rights Reserved.

Found USB Key for provisioning Intel(R) AMT
Continue with Auto Provisioning (Y/N)
```

Press any key to continue with system boot...

```
Intel(R) Management Engine BIOS Extension
Copyright(C) 2003-07 Intel Corporation.  All Rights Reserved.

Found USB Key for provisioning Intel(R) AMT
Continue with Auto Provisioning (Y/N)


Intel(R) AMT Provisioning complete
Press any key to continue with system boot...
```

```
Intel(R) Management Engine BIOS Extension
Copyright(C) 2003-07 Intel Corporation.  All Rights Reserved.

Found USB Key for provisioning Intel(R) AMT
Continue with Auto Provisioning (Y/N)


Intel(R) AMT Provisioning complete
Press any key to continue with system boot...
ME-BIOS Sync - Successful
```

24. Once complete, turn off the computer and move back to the management server.
25. Select **Step 6. Configure Automatic Profile Assignments**.

26. Verify that the setting is enabled. In the **Intel AMT 2.0+** dropdown, select the profile created previously. Configure the other settings for the environment.

27. Select **Step 7. Monitor Provisioning Process**.

The computers for which the keys were applied begin to appear in the system list. At first the status is **Unprovisioned**, then the system status changes to **In provisioning**, and finally it changes to **Provisioned** at the end of the process.

28. Select **Step 8. Monitor Profile Assignments**.

The computers for which profiles were assigned appear in the list. Each computer is identified by the **FQDN**, **UUID**, and **Profile Name** columns.

Once the computers are provisioned, they are visible under the **Collections** folder in **All configured Intel AMT computers**.

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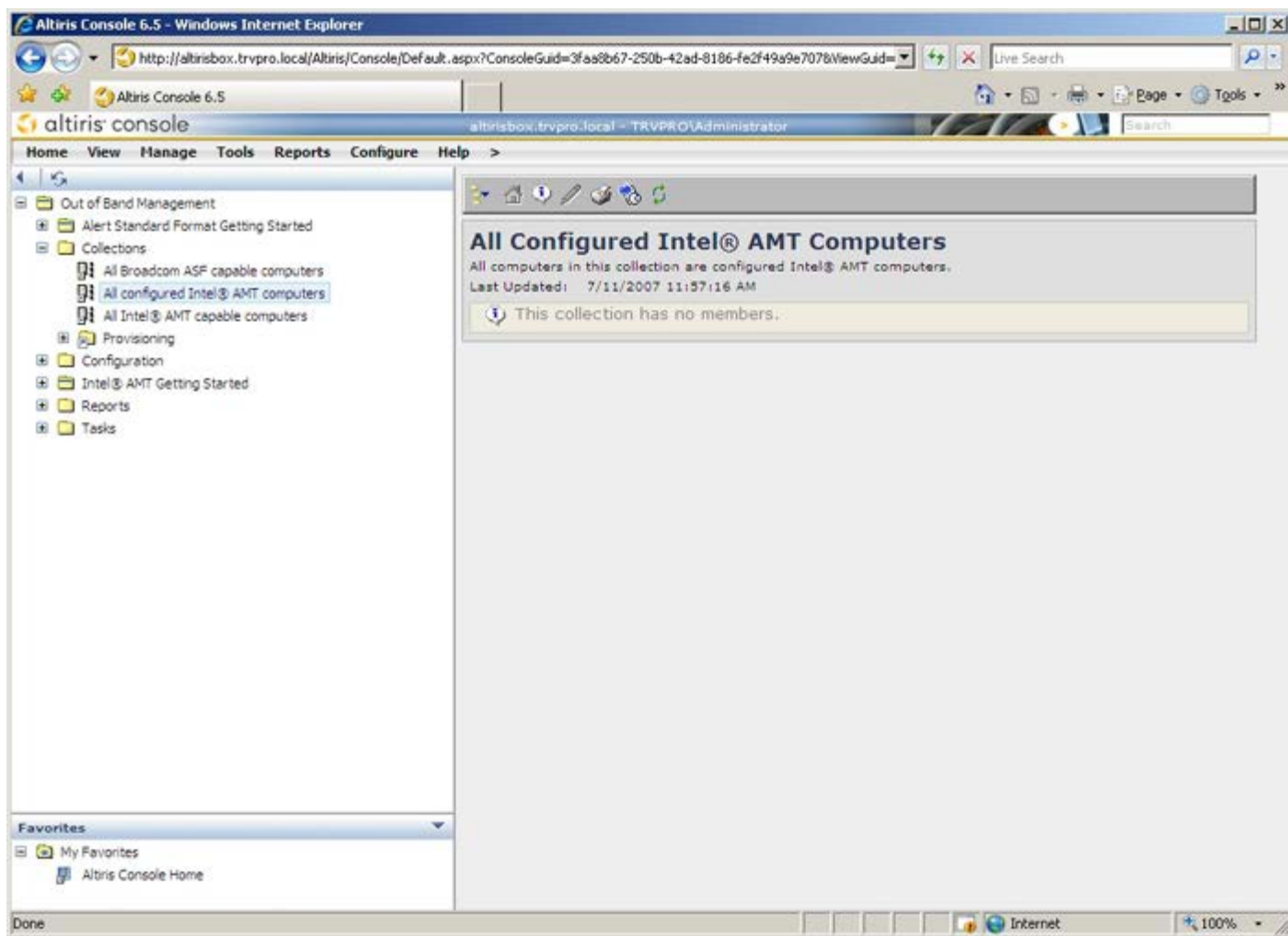
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System Deployment

Once you are ready to deploy a computer to a user, plug the computer into a power source and connect it to the network. Use the integrated Intel® 82566DM NIC. Intel Active Management Technology (Intel AMT) does not work with any other NIC solution.

When the computer is turned on, it immediately looks for a setup and configuration server (SCS). If the computer finds this server, the Intel AMT-capable computer sends a **Hello** message to the server (user must first activate network access either via MEBx or using Intel Activator).

DHCP and DNS must be available for the setup and configuration server search to automatically succeed. If DHCP and DNS are not available, then the setup and configuration servers (SCS) IP address must be manually entered into the Intel AMT-capable computer's MEBx.

The **Hello** message contains the following information:

- Provisioning ID (PID)
- Universally Unique Identifier (UUID)
- IP address
- ROM and firmware (FW) version numbers

The **Hello** message is transparent to the end user. There is no feedback mechanism to tell you that the computer is broadcasting the message. The SCS uses the information in the **Hello** message to initiate a Transport Layer Security (TLS) connection to the Intel AMT-capable computer using a TLS Pre-Shared key (PSK) cipher suite if TLS is supported.

The SCS uses the PID to look up the provisioning passphrase (PPS) in the provisioning server database and uses the PPS and PID to generate a TLS Pre-Master Secret. TLS is optional. For secure and encrypted transactions, use TLS if the infrastructure is available. If you do not use TLS, then HTTP Digest is used for mutual authentication. HTTP Digest is not as secure as TLS. The SCS logs into the Intel AMT computer with the username and password and provisions the following required data items:

- New PPS and PID (for future setup and configuration)
- TLS certificates
- Private keys
- Current date and time
- HTTP Digest credentials
- HTTP Negotiate credentials

The computer goes from the setup state to the provisioned state, and then Intel AMT is fully operational. Once in the provisioned state, the computer can be remotely managed.

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Operating System Drivers

Within the operating system, the AMT Unified driver must be installed to remove unknown devices in the Device Manager. The driver is discussed below. Unlike previous versions (3, 4, or 5) where there were two separate **HECI** and **LMS/SOL** drivers from customer re-install stand-point, the current version provides both drivers in a common package called **AMT Unified Driver**. When the unified driver package is installed, it manages both PCI devices in the Device Manager.

AMT Unified Driver

The Intel® AMT Serial-Over-LAN (SOL) / Local Manageability Service (LMS) driver is available on **support.dell.com** and on the ResourceCD under **Chipset Drivers**. The driver is labeled *Intel AMT SOL/LMS*. Once the driver is obtained, execute the file; it unzips and prompts the user to continue the installation process.

Once you install the SOL/LMS driver, the **PCI Serial Port** entry becomes the **Intel Active Management Technology - SOL (COM3)** entry.

HECI Driver

The Intel AMT Host Embedded Controller Interface (HECI) driver is available on **support.dell.com** and on the ResourceCD under **Chipset Drivers**. The driver is labeled *Intel AMT HECI*. Once the driver is obtained, execute the file; it unzips and prompts the user to continue the installation process.

Once you install the HECI drivers, the **PCI Simple Communications Controller** entry becomes the **Intel Management Engine Interface** entry.

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Intel AMT WebGUI

The Intel® AMT WebGUI is a Web browser-based interface for limited remote computer management. The WebGUI is often used as a test to determine if Intel AMT setup and configuration was performed properly on a computer. A successful remote connection between a remote computer and the host computer running the WebGUI indicates proper Intel AMT setup and configuration on the remote computer.

The Intel AMT WebGUI is accessible from any Web browser, such as Internet Explorer®.

Limited remote computer management includes:

- Hardware inventory
- Event logging
- Remote computer reset
- Changing of network settings
- Addition of new users

 NOTE: Information on using the WebUI interface is available on the Intel AMT website.

Follow the steps below to connect to the Intel AMT WebUI on a computer that has been configured and set up.

Intel AMT WebUI

1. Turn on an Intel AMT-capable computer that has completed Intel AMT setup and configuration.
2. Launch a Web browser from a separate computer, such as a management computer on the same subnet as the Intel AMT computer.
3. Connect to the IP address specified in the MEBx and port of the Intel AMT capable computer. (example: `http://ip_address:16992` or `http://192.168.2.1:16992`)

- By default, the port is 16992.

   NOTE: Use port 16993 and https:// to connect to the Intel AMT WebUI on a computer that has been configured and set up in the Enterprise mode.

- If DHCP is used, then use the fully qualified domain name (FQDN) for the ME. The FQDN is the combination of the host name and domain. (example: `http://host_name:16992` or `http://system1:16992`)

4. The management computer makes a TCP connection to the Intel AMT-capable computer and accesses the top level Intel AMT-embedded Web page within the Management Engine of the Intel AMT-capable computer.
5. Type the username and password. The default username is `admin` and the password is what was set during Intel AMT setup in the MEBx.
6. Review the computer information and make necessary changes.

    NOTE: You can change the MEBx password for the remote computer in the WebUI. Changing the password in the WebUI or a remote console results in two passwords. The new password, known as the remote MEBx password, only works remotely with the WebUI or remote console. The local MEBx password used to locally access the MEBx is not changed. You have to remember both the local and remote MEBx passwords to access the computer MEBx locally and remotely. When the MEBx password is initially set in Intel AMT setup, the password serves as both the local and remote password. If the remote password is changed, then the passwords are out of sync.

7. Select **Exit**.

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AMT Redirection Overview

Intel® AMT makes it possible to redirect serial and IDE communications from a managed client to a management console regardless of the boot and power state of the managed client. The client need only have the Intel AMT capability, a connection to a power source, and a network connection. Intel AMT supports Serial Over LAN (SOL, text/keyboard redirection) and IDE Redirection (IDER, CD-ROM redirection) over TCP/IP.

Serial Over LAN Overview

Serial Over LAN (SOL) is the ability to emulate serial port communication over a standard network connection. SOL can be used for most management applications where a local serial port connection is normally required.

When an active SOL session is established between an Intel AMT-enabled client and a management console using the Intel AMT redirection library, the client's serial traffic is redirected through Intel AMT over the LAN connection and made available to the management console. Similarly, the management console may send serial data over the LAN connection that appears to have come through the client's serial port.

IDE Redirection Overview

IDE Redirection (IDER) is capable of emulating an IDE CD drive, a legacy floppy, or an LS-120 drive over a standard network connection. IDER enables a management machine to attach one of its local drives to a managed client over the network. Once an IDER session is established, the managed client can use the remote device as if it were directly attached to one of its own IDE channels. This can be useful for remotely booting an otherwise unresponsive computer. IDER does not support the DVD format.

For example, IDER is used to boot a client with a corrupt operating system. First, a valid boot disk is loaded into the management console disk drive. This drive is then passed as an argument when the management console opens the IDER TCP session. Intel AMT registers the device as a virtual IDE device on the client, regardless of its power or boot state. Both SOL and IDER may be used together since the client BIOS may need to be configured to boot from the virtual IDE device.

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Intel® Management and Security Status Application

Intel® Management and Security Status (IMSS) is an application that displays information about a platform's Intel® Active Management Technology (Intel AMT) and Intel® Standard Manageability services.

The Intel Management and Security Status icon indicates whether Intel AMT and Intel Standard Manageability are running on the platform. The icon is located in the notification area. By default, the notification icon is displayed every time Windows* starts.

The Intel Management and Security Status application has a separate version per every Intel AMT generation (4.x, 5.x, 6.x). This is to describe the Intel Management and Security Status application for Intel AMT generation 6.x.

Click here for more information Intel Management and Security Status Application.

 NOTE: If the Intel Management and Security Status application starts automatically as a result of the user logging on to Windows, the icon will be loaded to the notification area only if Intel AMT or Intel Standard Manageability is enabled on the platform. If the Intel Management and Security Status application is started manually (via the Start menu), the icon is loaded even if none of these technologies is enabled, as long as all the drivers have been installed.

 NOTE: The information displayed in the Intel Management and Security Status is not shown in real time. The data is refreshed at different intervals.

* Information on this page provided by Intel.

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Troubleshooting

This page describes a few basic troubleshooting steps to follow if problems are experienced with the Intel® AMT configuration. Remember to always check DSN for more troubleshooting options.

Return to Default

Return to default is also known as un-provisioning. An Intel AMT setup and configured computer can be un-provisioned using the Intel AMT Configuration screen and the **Un-Provision** option.

Follow the steps below to un-provision a computer:

1. Select **Un-Provision** and then select **Full Un-provision**.

   Full un-provisioning is available for SMB Mode provisioned computers. This option returns all Intel AMT configuration settings to factory defaults and does NOT reset ME configuration settings or passwords. Full and partial un-provisioning is available for Enterprise Mode provisioned computers. Partial un-provisioning returns all Intel AMT configuration settings to factory defaults with the exception of the PID and PPS. Partial un-provisioning does NOT reset ME configuration settings or passwords.

   An un-provisioning message displays after about 1 minute. After un-provisioning completes, control is passed back to the Intel AMT Configuration screen. **Provisioning Server**, **Set PID and PPS**, and **Set PRTC** options are available again because the computer is set to the default Enterprise Mode.

2. Select **Return to previous menu**.
3. Select **Exit** and then press <y>.

   The computer restarts.

Firmware Flash

Flash the firmware to upgrade to newer versions of Intel AMT. The automatic flash feature can be disabled by selecting **Disabled** under the **Secure Firmware Update** setting in the MEBx interface. If this setting is disabled, a firmware error message appears when flashing the BIOS.

The firmware CANNOT be flashed to an older version or to the current version installed. The firmware flash, when available, is located on the support.dell.com site for download.

Serial-Over-LAN (SOL) / IDE Redirection (IDE-R)

If you cannot use IDE-R and SOL, follow these steps:

1. At the initial boot screen, press **<Ctrl><p>** to enter the MEBx screens.
2. When a prompt for the password appears, type the new Intel ME password.
3. Select **Intel AMT Configuration**, and then press **Enter**.
4. Select **Un-Provision**, and then press **Enter**.
5. Select **Full Unprovision**, and then press **Enter**.
6. Reconfigure the settings under the **Intel AMT Configuration** menu option shown here.

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